
CIRCULATION

An Official Journal of the American Heart Association

VOLUME XL
July-December, 1969



AMERICAN HEART ASSOCIATION, INC.

CIRCULATION

AN OFFICIAL JOURNAL OF THE AMERICAN HEART ASSOCIATION

EDITOR-IN-CHIEF

HOWARD B. BURCHELL, *Minneapolis, Minn.*

ASSISTANT EDITOR

M. KATHARINE SMITH, *Minneapolis, Minn.*

ASSOCIATE EDITORS

PATRICK A. ONGLEY, *Rochester, Minn.*

HENRY BLACKBURN, *Minneapolis, Minn.*

EDITORIAL BOARD

RAY C. ANDERSON, *Minneapolis, Minn.*
ROBERT W. BERLINER, *Bethesda, Md.*
C. GUNNAR BLOMQVIST, *Dallas, Texas*
STUART BONDURANT, *Albany, N. Y.*
DANIEL A. BRODY, *Memphis, Tenn.*
ROBERT A. BRUCE, *Seattle, Wash.*
MICHAEL E. DEBAKEY, *Houston, Texas*
VICTOR G. DEWOLFE, *Cleveland, Ohio*
LEWIS DEXTER, *Boston, Mass.*
JOSEPH T. DOYLE, *Albany, N. Y.*
JAMES W. DUSHANE, *Rochester, Minn.*
JESSE E. EDWARDS, *St. Paul, Minn.*
LUDWIG W. EICHNA, *Brooklyn, N. Y.*
FREDERICK H. EPSTEIN, *Ann Arbor, Mich.*
ALVAN R. FEINSTEIN, *New Haven, Conn.*
ALFRED P. FISHMAN, *Chicago, Ill.*
DONALD S. FREDRICKSON, *Bethesda, Md.*
EDWARD D. FREIS, *Washington, D. C.*
ROBERT H. FURMAN, *Oklahoma City, Okla.*
DAVID G. GREENE, *Buffalo, N. Y.*
HANS H. HECHT, *Chicago, Ill.*
ROBERT A. HELM, *Cincinnati, Ohio*
JOHN B. HICKAM, *Indianapolis, Ind.*
J. WILLIS HURST, *Atlanta, Ga.*
THOMAS N. JAMES, *Birmingham, Ala.*
LEWIS E. JANUARY, *Iowa City, Iowa*
THOMAS KILLIP, *New York, N. Y.*
JOHN W. KIRKLIN, *Birmingham, Ala.*
MARCUS O. KJELSBURG, *Minneapolis, Minn.*
SIMON KOLETSKY, *Cleveland, Ohio*
EDWARD C. LAMBERT, *Buffalo, N. Y.*

RICHARD LANGENDORF, *Chicago, Ill.*
MAURICE LEV, *Chicago, Ill.*
HOWARD P. LEWIS, *Portland, Ore.*
VICTOR A. MCKUSICK, *Baltimore, Md.*
DAN C. MCNAMARA, *Houston, Texas*
GORDON K. MOE, *Utica, N. Y.*
ALEXANDER S. NADAS, *Boston, Mass.*
DAVID F. OPDYKE, *Jersey City, N. J.*
CHARLES A. OWEN, JR., *Rochester, Minn.*
OGLESBY PAUL, *Chicago, Ill.*
HUBERT V. PIPBERGER, *Washington, D. C.*
RAYMOND D. PRUITT, *Rochester, Minn.*
T. JOSEPH REEVES, *Birmingham, Ala.*
JOHN ROSS, JR., *La Jolla, Calif.*
RICHARD S. ROSS, *Baltimore, Md.*
ABRAHAM M. RUDOLPH, *San Francisco, Calif.*
DAVID C. SABISTON, JR., *Durham, N. C.*
JOHN T. SHEPHERD, *Rochester, Minn.*
MINDEL C. SHEPS, *Chapel Hill, N. C.*
SOL SHERRY, *Philadelphia, Pa.*
RALPH E. SMITH, *Rochester, Minn.*
EDMUND H. SONNENBLICK, *Boston, Mass.*
MADISON S. SPACH, *Durham, N. C.*
HOWARD B. SPRAGUE, *Cambridge, Mass.*
JEREMIAH STAMLER, *Chicago, Ill.*
H. J. C. SWAN, *Los Angeles, Calif.*
JACK L. TITUS, *Rochester, Minn.*
JOHN D. TURNER, *Houston, Texas*
LODEWYK H. S. VAN MIEROP, *Gainesville, Fla.*
JAMES V. WARREN, *Columbus, Ohio*
STANFORD WESSLER, *St. Louis, Mo.*
PAUL M. ZOLL, *Boston, Mass.*

CONSULTING EDITOR: HERRMAN L. BLUMGART, *Boston, Mass.*

PUBLICATIONS COMMITTEE, AMERICAN HEART ASSOCIATION

CRAWFORD W. ADAMS
Nashville, Tenn.

CHARLES A. R. CONNOR
New York, N. Y.

ROBERT H. FURMAN
Oklahoma City, Okla.

J. WILLIS HURST
Atlanta, Ga.

EUGENE BRAUNWALD, *Chairman*
La Jolla, Calif.

SIMS GAYNOR
Sun City Center, Fla.

MILTON C. PAIGE, JR.
Boston, Mass.

GORDON K. MOE
Utica, N. Y.

HOWARD B. BURCHELL
Minneapolis, Minn.

CARLETON R. TREADWELL
Washington, D. C.

WALTER M. KIRKENDALL
Iowa City, Iowa

W. JAFE TAYLOR
Gainesville, Fla.

JULIUS H. COMROE, JR.
San Francisco, Calif.

CIRCULATION

VOLUME XL
July-December 1969

No. 1 (July)

HISTORICAL ANNOTATION

- Sir John Scott Burdon-Sanderson (1828-1905): A Pioneer in Electrophysiology.** Mark C. Rogers 1

ORIGINAL ARTICLES:

- Ultrasound Localization of Left Ventricular Outflow Obstruction in Hypertrophic Obstructive Cardiomyopathy.** Pravin M. Shah, Raymond Gramiak, and David H. Kramer 3
- Differences in Bile Acid Excretion: Primary Hypercholesterolemia Compared to Combined Hypercholesterolemia and Hypertriglyceridemia.** Bruce A. Kottke 13
- Postoperative Evaluation of Mitral Valve Function in Ostium Primum Defect with Cleft Mitral Valve (Partial Form of Atrioventricular Canal).** Sylvia P. Griffiths, Kent Ellis, John O. Burris, Sidney Blumenthal, Frederick O. Bowman, Jr., and James R. Malm 21
- The Spectrum of Pulmonary Vascular Disease in Transposition of the Great Arteries.** Peter H. Viles, Patrick A. Ongley, and Jack L. Titus 31
- Congenital Pulmonary Stenosis Resulting from Dysplasia of Valve.** Emil D. Koretzky, James H. Moller, Michael E. Korn, Colin J. Schwartz, and Jesse E. Edwards 43
- Delayed Onset of Hemolytic Anemia in a Child: An Indicator of Ball Variance of Aortic Valve Prosthesis.** B. Lynn Miller, Howard A. Pearson, Myron W. Wheat, Jr., Alvyn W. White, Jr., and Gerold L. Schiebler 55
- A Study of Atrioventricular Conduction in Man Using Premature Atrial Stimulation and His Bundle Recordings.** Anthony N. Damato, Sun H. Lau, Robert D. Patton, Charles Steiner, and Walter D. Berkowitz 61
- A Study of Atrioventricular Conduction in Atrial Fibrillation and Flutter in Man Using His Bundle Recordings.** Sun H. Lau, Anthony N. Damato, Walter D. Berkowitz, and Robert D. Patton 71
- Wenckebach Periods in the Bundle Branches.** Mauricio B. Rosenbaum, Gerardo J. Nau, Raul J. Levi, M. Susana Halpern, Marcelo V. Elizari, and Julio O. Lazzari 79
- Hemodynamic Studies in Chronic Uremia.** Francesco del Greco, Norman M. Simon, Jadwiga Roguska, and Charles Walker 87
- Temporal Relationships of Myocardial Lactate Metabolism, Left Ventricular Function, and S-T Segment Depression During Angina Precipitated by Exercise.** John O. Parker, Roxroy O. West, Robert B. Case, and Miguel A. Chiong 97

(Continued)

Sequential Alterations in Myocardial Lactate Metabolism, S-T Segments, and Left Ventricular Function During Angina Induced by Atrial Pacing. John O. Parker, Miguel A. Chiong, Roxroy O. West, and Robert B. Case	113
BOOK REVIEWS	133
NEWS FROM THE AMERICAN HEART ASSOCIATION	137

No. 2 (August)

ORIGINAL ARTICLES:

Physical Training in the Management of Coronary Artery Disease. Jan Praetorius Clausen, Ole Andrée Larsen, and Jens Trap-Jensen ..	143
Acute Rejection Following Cardiac Transplantation: Phonocardiographic and Ultrasound Observations. John S. Schroeder, Richard L. Popp, Edward B. Stinson, Eugene Dong, Jr., Norman E. Shumway, and Donald C. Harrison	155
Critical Assessment of Use of Central Venous Oxygen Saturation as a Mirror of Mixed Venous Oxygen in Severely Ill Cardiac Patients. Melvin M. Scheinman, Murray A. Brown, and Elliot Rapaport	165
A New Simple Model for the Synthesis of the Electrocardiogram. Herman N. Uhley	173
Atrial Tachysystole (Flutter?) with Apparent Exit Block. Roger P. Javier, Onkar S. Narula, and Philip Samet	179
A Critical Appraisal of the Electrocardiographic Criteria for the Diagnosis of Left Ventricular Hypertrophy. Donald W. Romhilt, Kevin E. Bove, Robert J. Norris, Emmett Conyers, Sandra Conradi, David T. Rowlands, and Ralph C. Scott	185
Use of the Ultrasonic Doppler Method for Timing of Valvular Movement: Application in the Differential Diagnosis of Extra Heart Sounds. John B. Kostis, Dietrich Fleischmann, and Samuel Bellet	197
Simultaneous Hypoglycemia and Acute Congestive Heart Failure. George Benzing, III, William Schubert, George Hug, and Samuel Kaplan	209
The Atrioventricular Conduction System in Two Cases of Tricuspid Atresia. Barbara Guller, James W. DuShane, and Jack L. Titus	217
Sudden Death in Idiopathic (Congenital) Right Atrial Enlargement: Postmortem Findings and Review of Cases. Lore Tenckhoff, Stanley J. Stamm, and J. Bruce Beckwith	227
Natural History of Transposition of the Great Arteries: Anatomy and Birth and Death Characteristics. Jerome Liebman, Lawrence Cullum, and Nedra B. Belloc	237
NEWS FROM THE AMERICAN HEART ASSOCIATION	263

No. 3 (September)

ORIGINAL ARTICLES:

Circulatory Effects of Electrical Stimulation of the Carotid Sinus Nerves in Man. Stephen E. Epstein, G. David Beiser, Robert E. Goldstein, Morris Stampfer, Andrew S. Wechsler, Gerald Glick, and Eugene Braunwald	269
--	-----

(Continued)

CONTENTS OF VOLUME XL

v

Visual Assessment of Regional Myocardial Perfusion Utilizing Radioactive Xenon and Scintillation Photography. P. J. Cannon, J. I. Haft, and P. M. Johnson	277
Electrocardiographic Findings in Cardiac Transplantation. James Scheuer, James A. Shaver, Barry C. Harris, James J. Leonard, and Henry T. Bahnson	289
Stress Electrocardiography in the Evaluation of Surgical Revascularization of the Heart. Donald G. Kassebaum, Melvin P. Judkins, and Herbert E. Griswold	297
Factors Related to ST-Segment Depression after Exercise in Middle-Aged Chinese Men. Benjamin N. Chiang, E. Russell Alexander, Robert A. Bruce, Donovan J. Thompson, and Nong Ting	315
Influence of Amyl Nitrite Inhalation on the Systolic Time Intervals in Normal Subjects and in Patients with Ischemic Heart Disease. Toshitami Sawayama, Masakazu Ochiai, Susumu Marumoto, Tohru Matsuura, and Isao Niki	327
Ventricular Echo Beats in the Human Heart Elicited by Induced Ventricular Premature Beats. R. M. Schuilenburg and D. Durrer	337
Relation of Extracellular Fluid Volume to Arterial Pressure during Drug-Induced Saluresis. Michael Davidov, Lillian Gavrilovich, William Mroczek, and Frank A. Finnerty, Jr.	349
Relation of Plasma to Interstitial Fluid Volume in Essential Hypertension. Robert C. Tarazi, Harriet P. Dustan, and Edward D. Frolich ..	357
Hemodynamic and Body Composition Changes Following Bilateral Nephrectomy in Chronic Renal Failure. Constantine L. Hampers, Robert M. Zollinger, Jr., John J. Skillman, J. Robert W. Gumpert, George L. Bailey, and John P. Merrill	367
Progressive Muscular Dystrophy: Hemodynamic, Angiographic, and Pathologic Study of a Patient with Myocardial Involvement. Martial A. Demany and Henry A. Zimmerman	377
Coarctation of the Aorta in Infancy. Sachchida N. Sinha, Merl L. Kardatzke, Roger B. Cole, Alexander J. Muster, Hans U. Wessel, and Milton H. Paul	385
Tricuspid Atresia with Increased Pulmonary Blood Flow: An Analysis of 13 Cases. Bertrand A. Marciano, Thomas A. Riemenschneider, Herbert D. Ruttenberg, Stanley J. Goldberg, and Michael Gyepes. .	399
Effect of Site of Shunt on Left Heart-Volume Characteristics in Children with Ventricular Septal Defect and Patent Ductus Arteriosus. M. M. Jarmakani, Thomas P. Graham, Jr., Ramon V. Canent, Jr., Madison S. Spach, and M. Paul Capp	411
BOOK REVIEWS	419
NEWS FROM THE AMERICAN HEART ASSOCIATION	421

No. 4 (October)

EDITORIAL:

The Effect of Physical Training in Manifest Ischemic Heart Disease. M. H. Frick	433
(Continued)	

ORIGINAL ARTICLES:

Heart Rate after Cardiac Transplantation. W. Beck, C. N. Barnard, and V. Schrire	437
Hemodynamic Performance of a Transplanted Human Heart. Richard A. Carleton, Stanley J. Heller, Hassan Najafi, and James G. Clark	447
The Effect of Acute Digitalization on the Hemodynamic Response to Exercise in Coronary Artery Disease. John O. Parker, Roxroy O. West, J. Rodney Ledwich, and Salvatore Di Giorgi	453
Prodromata in Acute Myocardial Infarction. Henry A. Solomon, Adrian L. Edwards, and Thomas Killip	463
Urinary Catecholamine Excretion in Myocardial Infarction. K. David Hayashi, Arthur J. Moss, and Paul N. Yu	473
Left Heart Hemodynamics During Angina Pectoris Induced by Atrial Pacing. Joseph W. Linhart, Frank J. Hildner, S. Serge Barold, John W. Lister, and Philip Samet	483
Hemodynamic Responses to Oxygen Breathing in Children with Severe Anemia. Gerd J. A. Cropp	493
Cardiovascular Pharmacology of Propranolol in Man. Steven Wolfson and Richard Gorlin	501
Studies in Human Atrial Flutter with the Use of Proximity Electrodes. Yehezkiel Kishon and Ralph E. Smith	513
His Bundle Rhythm. Anthony N. Damato and Sun H. Lau	527
Long-Term Pervenous Atrial Pacing. John A. Kastor, Roman W. DeSanctis, Robert C. Leinbach, J. Warren Harthorne, and Irving N. Wolfson	535
Left Atrial Transport in Mitral Stenosis. Fred P. Heidenreich, Mark E. Thompson, James A. Shaver, and James J. Leonard	545
The Excretion of Tritiated Digoxin in Normal Human Volunteers Before and After Unilateral Nephrectomy. James E. Doherty, William J. Flanagan, Rodney M. Patterson, and Glenn V. Dalrymple	555
Plasma Renin Activity in End-Stage Kidney Disease. Michael Gutkin, Gilbert E. Levinson, Anthony S. King, and Norman Lasker	563
Childhood Leukemic Heart Disease: A Study of 116 Hearts of Children Dying of Leukemia. J. E. Sumners, W. W. Johnson, and L. E. Ainger	575
Primary Pulmonary Hypertension in a Child: Response to Pharmacologic Agents. B. N. Satyanarayana Rao, James H. Moller, and Jesse E. Edwards	583
Hepatic Injury Caused by L-Alpha-Methyldopa. S. G. Elkington, W. M. Schreiber, and H. O. Conn	589
BOOK REVIEWS	597
NEWS FROM THE AMERICAN HEART ASSOCIATION	599
(Continued)	

No. 5 (November)

ORIGINAL ARTICLES:

- Measurement of Instantaneous Blood Flow Velocity and Pressure in Conscious Man with a Catheter-Tip Velocity Probe.** Ivor T. Gabe, James H. Gault, John Ross, Jr., Dean T. Mason, Christopher J. Mills, John P. Shillingford, and Eugene Braunwald 603
- Effects of Atrial Pacing on Left Ventricular Performance in Patients with Heart Disease.** Richard F. Leighton, Stephen J. Zaron, John L. Robinson, and Arnold M. Weissler 615
- Protein Content in Lymph and Edema Fluids in Congestive Heart Failure.** Charles L. Witte, Marlys Hearst Witte, Allan E. Dumont, William R. Cole, and John R. Smith 623
- The Ejection Click of Valvular Pulmonic Stenosis.** Herbert N. Hultgren, Richard Reeve, Keith Cohn, and Rima McLeod 631
- Arterial Hypoxemia Following Acute Myocardial Infarction.** A. Valencia and J. H. Burgess 641
- Hypovolemia in Shock Due to Acute Myocardial Infarction.** Henry S. Loeb, Raymond J. Pietras, John R. Tobin, Jr., and Rolf M. Gunnar 653
- Large Right Atrial Thrombi Surrounding Permanent Transvenous Pacemakers.** Anthony R. London, Peter J. Runge, Richard F. Balsam, Monica B. Bishop, and George Bousvaros 661
- Intrapericardial Cyst Formation in Constrictive Pericarditis Simulating Tricuspid Stenosis.** Aubrey Pitt, Robert H. Cutforth, Harvey W. Bender, J. O'Neal Humphries, George R. Sterling, J. Michael Criley, and Richard S. Ross 665
- Recurrent Left Atrial Myxoma: Report of a Case.** Om P. Bahl, G. Charles Oliver, Thomas B. Ferguson, Nikolaus Schad, and Brent M. Parker 673
- Left Posterior Fascicular Block in Canine and Primate Hearts: An Electrocardiographic Study.** Thomas B. Watt, Jr. and Raymond D. Pruitt 677
- A Study of the Human Heart as a Multiple Dipole Electrical Source: I. Normal Adult Male Subjects.** John H. Holt, Jr., Anthony C. L. Barnard, M. Stuart Lynn, and Peder Svendsen 687
- A Study of the Human Heart as a Multiple Dipole Electrical Source: II. Diagnosis and Quantitation of Left Ventricular Hypertrophy.** John H. Holt, Jr., Anthony C. L. Barnard, and M. Stuart Lynn 697
- A Study of the Human Heart as a Multiple Dipole Electrical Source: III. Diagnosis and Quantitation of Right Ventricular Hypertrophy.** John H. Holt, Jr., Anthony C. L. Barnard, M. Stuart Lynn, and John O. Kramer, Jr. 711
- Use of the Dipole Moment in the Assessment of Left Ventricular Hypertrophy.** R. Curtis Ellison, Eugene J. Fischmann, Olli S. Miettinen, and Paul G. Hugenholtz 719
- Plasma Renin Activity in Patients with Coarctation of the Aorta: A Comment on the Pathogenesis of Prestenotic Hypertension.** Claus Werning, Manfred Schönbeck, Peter Weidmann, Klaus Bauermann, Etzel Gysling, Pierre Wirz, and Walter Siegenthaler 731

(Continued)

SPECIAL REPORT:

- Adrenal Cortex, Aldosterone, and Hypertension: Report of an International Workshop.** Patrick J. Mulrow, Frederic C. Bartter, Walter M. Kirkendall, Ralph E. Peterson, and James F. Tait 739

BOOK REVIEWS 745**NEWS FROM THE AMERICAN HEART ASSOCIATION** 749

No. 6 (December)

EDITORIALS:

- Thrombosis.** Sol Sherry 755
- Aspirin, Platelets, and Bleeding.** E. J. Walter Bowie and Charles A. Owen, Jr. 757
- Aldosterone and the Stouffer Prize.** Irvine E. Page and James W. McCubbin 761

ORIGINAL ARTICLES:

- Aortic Homograft Valve Replacement: A Long-Term Follow-Up of an Initial Series of 101 Patients.** B. G. Barratt-Boyes, A. H. G. Roche, P. W. T. Brandt, J. C. Smith, and J. B. Lowe 763
- Use of Superior Vena Cava-Right Pulmonary Artery Anastomosis in Congenital Heart Disease with Decreased Pulmonary Blood Flow.** Irwin B. Boruchow, Thomas D. Bartley, Larry P. Elliott, Myron W. Wheat, Jr., L. Jerome Krovetz, and Gerold L. Schiebler 777
- Cardiovascular Abnormalities Following Surgery for Left-to-Right Shunts: Observations in Atrial Septal Defects, Ventricular Septal Defects, and Patent Ductus Arteriosus.** Richard D. Lueker, John H. K. Vogel, and S. Gilbert Blount, Jr. 785
- Results of Repair of Tetralogy of Fallot.** M. S. Gotsman, W. Beck, C. N. Barnard, T. G. O'Donovan, and V. Schrire 803
- Acute Pulmonary Edema in the Absence of Left Ventricular Failure.** Edward A. Rittenhouse and K. Alvin Merendino 823
- The Effect of Glucagon on the Coronary Circulation in Man.** Nora Goldschlager, Erwin Robin, Charles M. Cowan, Georg Leb, and Richard J. Bing 829
- Coronary and Systemic Hemodynamic Effects of Cardiac Pacing in Man with Complete Heart Block.** George G. Rowe, Roger R. Stenlund, James H. Thomsen, Ward Terry, and Alberto S. Querimit 839
- Therapy of Angina Pectoris with Propranolol and Long-Acting Nitrates.** Alberto N. Goldbarg, John F. Moran, Thomas K. Butterfield, Rimgaudas Nemickas, and Gustavo A. Bermudez 847
- Observations on the Regulation of Cerebral Blood Flow in Complete Heart Block.** William Shapiro, and N. P. S. Chawla 863
- Contribution of the Circle of Willis to the Subclavian Steal Syndrome.** Reginald S. A. Lord, Rafael Adar, and Robert L. Stein 871
- Degeneration of the Cardiac Nerves in Chagas' Disease: Further Studies.** J. C. Manço, L. Gallo, Jr., R. A. Godoy, R. G. Fernandes, and D. S. Amorim 879

(Continued)

CONTENTS OF VOLUME XL

ix

Left Ventricular Diastolic Pressure Elevation Consequent to Pulmonary Stenosis. Walter H. Herbert and Edward Yellin	887
The Value of Aggressive Therapy in the Hypertensive Patient with Azotemia. William J. Mroczek, Michael Davidov, Lillian Gavrilovich, and Frank A. Finnerty, Jr.	893
Ultrasound in the Diagnosis and Evaluation of Therapy of Idiopathic Hypertrophic Subaortic Stenosis. Richard L. Popp and Donald C. Harrison	905
A Long-Time Study of the Blood Lipids of Two Students of Atherosclerosis. Irvine H. Page and Lena A. Lewis	915
Termination of Paroxysmal Junctional Tachycardia by Right Ventricular Stimulation. Howard J. Zeft and Ronald L. McGowan	919
Localization of the Site of Myocardial Scarring in Man by High-Frequency Components. Nancy C. Flowers, Leo G. Horan, W. J. Tolleson, and J. R. Thomas	927
On-line Analysis of the Exercise Electrocardiogram. L. T. Sheffield, J. H. Holt, F. M. Lester, D. V. Conroy, and T. J. Reeves	935
BOOK REVIEWS	945
AN APPRECIATION	951
NEWS FROM THE AMERICAN HEART ASSOCIATION	953
VOLUME AUTHOR INDEX	959
VOLUME SUBJECT INDEX	961
SUPPLEMENTS 1969 AUTHOR INDEX	S-IX
SUPPLEMENTS 1969 SUBJECT INDEX	S-XI

CIRCULATION

VOLUME XL

JULY-DECEMBER, 1969

AUTHOR INDEX

- Adar, R., 871
 Ainger, L. E., 575
 Alexander, E. R., 315
 Amarin, D. S., 879
- Bahl, O. P., 673
 Bahnson, H. T., 289
 Bailey, G. L., 367
 Balsam, R. F., 661
 Barnard, A. C. L., 687, 697, 711
 Barnard, C. N., 437, 803
 Barold, S. S., 483
 Barratt-Boyes, B. G., 763
 Bartley, T. D., 777
 Bartter, F. C., 739
 Baumann, K., 731
 Beck, W., 437, 803
 Beckwith, J. B., 227
 Beiser, G. D., 269
 Bellet, S., 197
 Belloc, N. B., 237
 Bender, H. W., 665
 Benzing, G., 111, 209
 Berkowitz, W. D., 61, 71, 855
 Bermudez, G. A., 847
 Bing, R. J., 829
 Bishop, M. B., 661
 Blount, S. G., Jr., 785
 Blumenthal, S., 21
 Boruchow, I. B., 777
 Bousvaros, G., 661
 Bove, K. E., 185
 Bowie, E. J. W., 757
 Bowman, F. O., Jr., 21
 Brandt, P. W. T., 763
 Braunwald, E., 269, 603
 Brown, M. A., 165
 Bruce, R. A., 315
 Burgess, J. H., 641
 Burris, J. O., 21
 Butterfield, T. K., 847
- Canent, R. V., Jr., 411
 Cannon, P. J., 277
 Capp, M. P., 411
 Carleton, R. A., 447
 Case, R. B., 97, 113
 Chawla, N. P. S., 863
 Chiang, B. N., 315
 Chiong, M. A., 97, 113
 Clark, J. G., 447
 Clausen, J. P., 143
 Cohn, K., 631
- Cole, R. B., 385
 Cole, W. R., 623
 Conn, H. O., 589
 Conradi, S., 185
 Conroy, D. V., 935
 Conyers, E., 185
 Cowan, C. M., 829
 Criley, J. M., 665
 Cropp, G. J. A., 493
 Cullum, L., 237
 Cutforth, R. H., 665
- Dalrymple, G. V., 555
 Damato, A. N., 61, 71, 527, 855
 Davidov, M., 349, 893
 del Greco, F., 87
 Demany, M. A., 377
 DeSanctis, R. W., 535
 DiGiorgi, S., 453
 Doherty, J. E., 555
 Dong, E., Jr., 155
 Dumont, A. E., 623
 Durrer, D., 337
 DuShane, J. W., 217
 Dustan, H. P., 357
- Edwards, A. L., 463
 Edwards, J. E., 43, 583
 Elizari, M. V., 79
 Elkington, S. G., 589
 Elliott, L. P., 777
 Ellis, K., 21
 Ellison, R. C., 719
 Epstein, S. E., 269
- Ferguson, T. B., 673
 Fernandes, R. G., 879
 Fischmann, E. J., 719
 Finnerty, F. A., Jr., 349, 893
 Flanagan, W. J., 555
 Fleischmann, D., 197
 Flowers, N. C., 927
 Frick, M. H., 433
 Frohlich, E. D., 357
- Cabe, I. T., 603
 Gallo, L., Jr., 879
 Gault, J. H., 603
 Gavrilovich, L., 349, 893
 Glick, G., 269
 Godoy, R. A., 879
 Goldberg, A. N., 847
 Goldberg, S. J., 399
- Goldschlager, N., 829
 Goldstein, R. E., 269
 Gorlin, R., 501
 Gotsman, M. S., 803
 Graham, T. P., Jr., 411
 Gramiak, R., 3
 Griffiths, S. P., 21
 Griswold, H. E., 297
 Guller, B., 217
 Gumpert, R. W., 367
 Gunnar, R. M., 653
 Gutkin, M., 563
 Gyepes, M., 399
 Cysling, E., 731
- Haft, J. I., 277
 Halpern, M. S., 79
 Hampers, C. L., 367
 Harris, B. C., 289
 Harrison, D. C., 155, 905
 Harthorne, J. W., 535
 Hayashi, K. D., 473
 Heidenreich, F. P., 545
 Heller, S. J., 447
 Herbert, W. H., 887
 Hildner, F. J., 483
 Holt, J. H., Jr., 687, 697, 711, 935
 Horan, L. G., 927
 Hug, G., 209
 Hugenholtz, P. C., 719
 Hultgren, H. N., 631
 Humphries, J. O'N., 665
- Jarmakani, M. M., 411
 Javier, R. P., 179
 Johnson, P. M., 277
 Johnson, W. W., 575
 Judkins, M. P., 297
- Kardatzke, M. L., 385
 Kassebaum, D. G., 297
 Kastor, J. A., 535
 Killip, T., 463
 King, A. S., 563
 Kirkendall, W. M., 739
 Kishon, Y., 513
 Koretzky, E. D., 43
 Korn, M. E., 43
 Kostis, J. B., 197
 Kottke, B. A., 13
 Kramer, D. H., 3
 Kramer, J. O., Jr., 711
 Krovetz, L. J., 777

- Lasker, N., 563
 Larsen, O. A., 143
 Lau, S. H., 61, 71, 527, 855
 Lazzari, J. O., 79
 Leb, G., 829
 Ledwich, J. R., 453
 Leighton, R. F., 615
 Leinbach, R. C., 535
 Leonard, J. J., 289, 545
 Lester, F. M., 935
 Levi, R. J., 79
 Levinson, G. E., 563
 Lewis, L. A., 915
 Liebman, J., 237
 Linhart, J. W., 483
 Lister, J. W., 483
 Loeb, H. S., 653
 London, A. R., 661
 Lord, R. S. A., 871
 Lowe, J. B., 763
 Lueker, R. D., 785
 Lynn, M. S., 687, 697, 711

 Malm, J. R., 21
 Manço, J. C., 879
 Marcano, B. A., 399
 Marumoto, S., 327
 Mason, D. T., 603
 Matsuura, T., 327
 Merendino, K. A., 823
 Merrill, J. P., 367
 Miettinen, O. S., 719
 Miller, B. L., 55
 Mills, C. J., 603
 Moller, J. H., 43, 583
 Moran, J. F., 847
 Moss, A. J., 473
 Mroczek, W. J., 349, 893
 Mulrow, P. J., 739
 Muster, A. J., 385
 McCubbin, J. W., 761
 McGowan, R. L., 919
 McLeod, R., 631

 Najafi, H., 447
 Narula, O. S., 179
 Nau, C. J., 79
 Nemickas, R., 847
 Niki, I., 327
 Norris, R. J., 185

 Ochiai, M., 327
 Oliver, G. C., 673
 Ongley, P. A., 31
 Owen, C. A., Jr., 757

 Page, I. H., 761, 915
 Parker, B. M., 673

 Parker, J. O., 97, 113, 453
 Patterson, R. M., 555
 Paul, M. H., 385
 Patton, R. D., 61, 71
 Pearson, H. A., 55
 Peterson, R. E., 739
 Pietras, R. J., 653
 Pitt, A., 665
 Popp, R. L., 155, 905
 Pruitt, R. D., 677

 Querimit, A. S., 839

 Rao, B. N. S., 583
 Rapaport, E., 165
 Reeve, R., 631
 Reeves, T. J., 935
 Riemenschneider, T. A., 399
 Rittenhouse, E. A., 823
 Robin, E., 829
 Robinson, J. L., 615
 Roche, A. H. G., 763
 Rogers, M. C., 1
 Roguska, J., 87
 Romhilt, D. W., 185
 Rosenbaum, M. B., 79
 Ross, J., Jr., 603
 Ross, R. S., 665
 Rowe, G. G., 839
 Rowlands, D. T., 185
 Runge, P. J., 661
 Ruttenberg, H. D., 399

 Samet, P., 179, 483
 Sawayama, T., 327
 Schad, N., 673
 Scheinman, M. M., 165
 Scheuer, J., 289
 Schiebler, G. L., 55, 777
 Schönbeck, M., 731
 Schrire, V., 437, 803
 Schreiber, W. M., 589
 Schroeder, J. S., 155
 Schubert, W., 209
 Schuilenburg, R. M., 337
 Schwartz, C. J., 43
 Scott, R. C., 185
 Shah, P. M., 3
 Shapiro, W., 863
 Shaver, J. A., 289, 545
 Sheffield, L. T., 935
 Sherry, S., 755
 Shillingford, J. P., 603
 Shumway, N. E., 155
 Siegenthaler, W., 731
 Simon, N. M., 87
 Sinha, S. N., 385
 Skillman, J. J., 367

 Smith, J. C., 763
 Smith, J. R., 623
 Smith, R. E., 513
 Solomon, H. A., 463
 Spach, M. S., 411
 Stamm, S. J., 227
 Stampfer, M., 269
 Stein, R. L., 871
 Steiner, C., 61, 855
 Stenlund, R. R., 839
 Stinson, E. B., 155
 Stirling, G. R., 665
 Sumners, J. E., 575
 Svendsen, P., 687

 Tait, J. F., 739
 Tarazi, R. C., 357
 Tenckhoff, L., 227
 Terry, W., 839
 Thomas, J. R., 927
 Thompson, D. J., 315
 Thompson, M. E., 545
 Thomsen, J. H., 839
 Ting, N., 315
 Titus, J. L., 31, 217
 Tobin, J. R., Jr., 653
 Tolleson, W. J., 927
 Trap-Jensen, J., 143

 Uhley, H. N., 173

 Valencia, A., 641
 Viles, P. H., 31
 Vogel, J. H. K., 785

 Walker, C., 87
 Watt, T. B., Jr., 677
 Wechsler, A. S., 269
 Weidmann, P., 731
 Weissler, A. M., 615
 Werning, C., 731
 Wessel, H. U., 385
 West, R. O., 97, 113, 453
 Wheat, M. W., Jr., 55, 777
 White, A. W., Jr., 55
 Wirz, P., 731
 Wit, A. L., 855
 Witte, C. L., 623
 Witte, M. H., 623
 Wolfson, I. N., 535
 Wolfson, S., 501

 Yellin, E., 887
 Yu, P. N., 473

 Zaron, S. J., 615
 Zeft, H. J., 919
 Zimmerman, H. A., 377
 Zollinger, R. M., Jr., 367

CIRCULATION

VOLUME XL

JULY-DECEMBER, 1969

SUBJECT INDEX

A

- Acetylcholine
 - response of primary pulmonary hypertension, 583
- Acetylsalicylic acid
 - effect on platelets and bleeding, 757
- Adrenal cortex
 - aldosterone, hypertension and, 739
- Age
 - transposition of the great arteries and maternal age, 237
 - ST-segment depression after exercise in middle-aged Chinese men, 315
- Aldomet
 - hepatic injury caused by *L*-alpha-methyldopa, 589
- Aldosterone
 - adrenal cortex, aldosterone and hypertension (report of International Workshop), 739
 - function in hypertension, 761
 - Stouffer Prize and, 761
- Amyl nitrite
 - effect of inhalation on systolic time intervals in ischemic heart disease and normal subjects, 327
 - ultrasound and idiopathic hypertrophic subaortic stenosis, 905
- Anastomosis
 - superior vena cava-right pulmonary artery, in congenital heart disease, 777
- Anemia
 - childhood leukemic heart disease, 575
 - hemodynamic responses to oxygen breathing in children with severe anemia, 493
 - hemolytic
 - and ball variance, 44
 - delayed onset in a child, 55
 - plasma renin activity in end-stage kidney disease, 563
- Angina pectoris
 - cardiovascular pharmacology of propranolol, 501
 - electrical stimulation of carotid sinus nerves, 269
 - induced by atrial pacing
 - left heart hemodynamics during, 483
 - myocardial lactate metabolism, 113
 - left ventricular function and S-T segment depression during exercise, 97
 - on-line analysis of exercise ECG, 935
 - prodromata in acute myocardial infarction, 463
 - stress ECG in evaluation of surgical revascularization, 297
 - therapy with propranolol and nitrates, 847
- Angiocardiography
 - multiple dipole electrocardiography in left ventricular hypertrophy, 697
 - superior vena cava-right pulmonary artery anastomosis in congenital heart disease, 777
 - tetralogy of Fallot, 803
 - tricuspid atresia with increased pulmonary blood flow, 399
- Angiography
 - left ventricular, postoperative evaluation of mitral valve function in ostium primum defect with cleft mitral valve, 21
 - progressive muscular dystrophy with myocardial involvement, 377
- Animal studies
 - dogs
 - effects of propranolol on cardiac conduction, 855
 - left posterior fascicular block, ECG study, 677
 - myocardial perfusion utilizing scintillation photography and Xenon, 277
 - monkeys, left posterior fascicular block, ECG study, 677
- Anoxia
 - cardiovascular abnormalities following surgery for left-to-right shunts, 785
- Antihypertensive therapy
 - hypertension with azotemia, 893
- Antilymphocytic globulin
 - acute rejection following cardiac transplantation, 155
- Aorta
 - coarctation of
 - in infancy, 385
 - plasma renin activity, 731
 - measurement of instantaneous blood flow velocity and pressure with catheter-tip velocity probe, 603
- Aortic arch anomalies
 - tricuspid atresia with increased pulmonary blood flow, 399
- Aortic valve
 - disease
 - left ventricular end-diastolic pressure in pulmonary stenosis, 887
 - replacement, 763
 - acute pulmonary edema, 823
 - ultrasonic Doppler method for timing valvular movements, 197
- Aplastic crisis
 - hemolytic anemia and ball variance, 55
- Arrhythmias
 - atrial tachysystole and exit block, 179
 - A-V conduction in atrial fibrillation, 71
 - effects of propranolol on cardiac conduction, 855
 - ECG findings in cardiac transplantation, 289
 - Histopathologic Features of Cardiac Arrhythmias* (Rossi), 597
 - long-term perivenous atrial pacing, 535
 - sudden death in right atrial enlargement, 227
 - supraventricular, progressive muscular dystrophy with myocardial involvement, 377
 - ventricular
 - urinary catecholamine excretion in myocardial infarction, 473
- Arteries
 - hypoxemia following acute myocardial infarction, 641
 - pressure
 - plasma renin activity, 563
 - relation of extracellular fluid volume to, during drug-induced saluresis, 349
- Arteriography
 - stress ECG in evaluation of surgical revascularization, 297

- Arteriovenous communications**
Abnormal Arteriovenous Communications: Peripheral and Intracardiac; Acquired and Congenital (Holman), 745
- Ascites**
 protein content in lymph and edema fluids in congestive heart failure, 623
- Aspirin**
 effect on platelet function and bleeding, 757
- Atherosclerosis**
Atherosclerosis: Pathology, Physiology, Aetiology, Diagnosis and Clinical Management (Schettler and Boyd, eds.), 745
 cardiovascular pharmacology of propranolol, 501
Hypercholesterolemia and Clinical Atherosclerosis (Reisel), 134
- Atrial pacing**
 effect on left ventricular performance in heart disease, 615
 long-term pervenous, 535
 myocardial lactate metabolism, S-T segments and left ventricular function during angina induced by, 113
- Atrial septal defects**
 cardiovascular abnormalities following surgery for left-to-right shunts, 785
- Atrioventricular block**
 large right atrial thrombi surrounding transvenous pacemakers, 661
- Atrioventricular canal**
 postoperative evaluation of mitral valve function in ostium primum defect with cleft mitral valve (partial form of atrioventricular canal), 21
- Atrioventricular conduction**
 in atrial fibrillation and flutter using His bundle recordings, 71
 effects of propranolol, 855
 long-term pervenous atrial pacing, 535
 study using premature atrial stimulation and His bundle recordings, 61
 in tricuspid atresia, 217
 ventricular echo beats elicited by induced ventricular premature beats, 337
 Wenckebach periods in the bundle branches, 79
- Atrioventricular dissociation**
 left atrial transport in mitral stenosis, 545
- Atrioventricular nodal potential**
 study of A-V conduction, 61
 fibrillation and flutter using His bundle recordings, 71
- Atrioventricular nodal rhythms**
 His bundle rhythm, 527
- Atrium**
 fibrillation
 study of A-V conduction using His bundle recordings, 71
 flutter
 atrial tachysystole and exit block, 179
 proximity electrodes used for studying, 513
 study of A-V conduction in atrial fibrillation and, using His bundle recordings, 71
 sudden death in right atrial enlargement, 227
 idiopathic right atrial enlargement, sudden death in, 227
 left atrial transport in mitral stenosis, 545
 pacing. *See* Pacing and pacemakers
 premature atrial stimulation
 study of A-V conduction using His bundle recordings and, 61
 recurrent left atrial myxoma, 673
 tachysystole with exit block, 179
 thrombi, large right atrial thrombi surrounding transvenous pacemakers, 661
 volume, effect of shunt on left heart-volume characteristics, 411
- Atropine sulfate**
 Chagas' heart disease, 879
- Atropinization**
 heart rate after cardiac transplantation, 437
- Auscultation**
 acute rejection following cardiac transplantation, 155
 ultrasonic Doppler method for timing valvular movements, 197
- Azathioprine**
 acute rejection following cardiac transplantation, 155
- Azotemia**
 therapy for hypertension with, 893

B

- Ballistocardiography**
Ballistocardiography and Cardiovascular Performance (Starr, ed.) 945
- Banding**
 pulmonary
 spectrum of pulmonary vascular disease in transposition of the great arteries, 31
- Baroreceptor reflexes**
 electrical stimulation of carotid sinus nerves, 269
 heart rate after cardiac transplantation, 437
- Beats. *See* Heart beats**
- Beta-adrenergic blockade**
 cardiovascular pharmacology of propranolol, 501
- Beta blockade**
 heart rate after cardiac transplantation, 437
- Bilateral bundle-branch block**
 Wenckebach periods in bundle branches, 79
- Bile acid excretion**
 primary hypercholesterolemia compared to combined hypercholesterolemia and hypertriglyceridemia, 13
- Biophysics**
 multiple dipole electrocardiography, 687
- Birth characteristics**
 transposition of the great arteries, 237
- Bleeding**
 effect of aspirin on platelet function, 757
- Blocks**
 bundle-branch
 Wenckebach periods in, 79
 exit block and atrial tachysystole, 179
See also Heart block
- Blood flow**
 autoregulation of, oxygen breathing in children with anemia, 493
 coronary
 cardiovascular pharmacology of propranolol, 501
 effects of pacing in complete heart block, 839
 correlation of central venous oxygen saturation and mixed venous oxygen in severely ill patients, 165
 effects of glucagon on coronary circulation, 829
 measurement of velocity and pressure with catheter-tip velocity probe, 603
 myocardial perfusion utilizing scintillation photography and, 277
 physical training in management of coronary heart disease, 143
 pulmonary, tricuspid atresia with increased, 399
 regulation in complete heart block, 863
- Blood gas**
 regulation of cerebral blood flow in heart block, 863

Blood pressure

- arterial, relation of extracellular fluid volume to arterial pressure during drug-induced saluresis, 349
- atrial pacing and left ventricular performance, 615
- Chagas' heart disease, 879
- ejection click of valvular pulmonic stenosis, 631
- heart rate after cardiac transplantation, 437
- influence of amyl nitrite inhalation on systolic time intervals in ischemic heart disease and normal patients, 327
- left ventricular end-diastolic pressure pulmonary stenosis, 887
- measurement of instantaneous blood flow velocity and pressure with catheter-tip velocity probe, 603
- ST-segment depression after exercise in middle-aged Chinese men, 315
- subclavian steal syndrome, 871
- systemic arterial pressure
 - plasma renin activity, 563
- systolic
 - therapy of angina pectoris, 847

Blood urea nitrogen

- therapy for hypertension with azotemia, 893

Blood viscosity

- oxygen breathing in children with anemia, 493

Blood volume

- hemodynamic studies in chronic uremia, 87
- plasma renin activity, 563

Body composition

- changes following bilateral nephrectomy in chronic renal failure, 367

Book reviews, 133, 419, 597, 745, 945

- Abnormal Arteriovenous Communications: Peripheral and Intracardiac; Acquired and Congenital* (Holman), 745
- Advances in Cardiopulmonary Disease, vol. IV* (Banyai and Gordon, eds.), 133
- The American University: How It Runs; Where It is Going* (Barzun), 945
- Atherosclerosis: Pathology, Physiology, Aetiology, Diagnosis and Clinical Management* (Schettler and Boyd, eds.), 745
- Ballistocardiography and Cardiovascular Performance* (Starr, ed.), 945
- The Cardiac Surgical Patient: Pathophysiologic Considerations and Nursing Care* (Powers and Storlie), 748
- Cerebral Vascular Diseases* (Toole, Siekert and Whisnant, eds.), 133
- CIBA Collection of Medical Illustrations, Volume 5. Heart* (Netter), 746
- Clinical Aspects of Operable Heart Disease* (Kahn, Strang and Wilson), 945
- Congenital Anomalies of the Carotid Arteries* (Lie), 747
- Diseases of Lymphatics and Lymph Circulation* (Foldi), 946
- Ergometry in Cardiology* (Denolin, Konig, Messin and Degré, eds.), 946
- Functional Behavior of the Vascular Mechanisms of the Brain* (Mchedlishvili), 419
- Handbook of Pediatric Cardiology* (Krovetz, Gessner and Schiebeler), 598
- Hemorheology: Proceedings of the First International Conference, The University of Iceland, Reykjavik* (Copley, ed.), 134
- Histopathologic Features of Cardiac Arrhythmias* (Rossi), 597
- Hypercholesterolemia and Clinical Atherosclerosis* (Reisel), 134

Modern Trends in Cardiac Surgery, vol. 2 (Wooler and Aberdeen, eds.), 419

Practical Evaluation of the Electrocardiogram: a Synopsis of Differential Diagnosis (Schroeder and Suedoff), 947

The Prevention of Coronary Heart Disease (Mulcahy and Hickey), 948

A Primer of Cardiac Diagnosis (Luisada and Sainani), 135

Progress in Surgery, Vol. 7. (Allgower, Bergentz, Calne and Gruber, eds.), 747

Pulmonary Arteriovenous Fistula (Sluiter-Eringa and Sluiter), 948

The Pulmonary Capillary Network in Man: A Physiopathological Study (Englert), 597

The Pulmonary Circulation and Interstitial Space (Fishman and Hecht, eds.), 949

A Treatment Manual for Patients with Pulmonary Emphysema (Barach), 949

Bradycardia

- paroxysmal junctional tachycardia, 919

Brain

Cerebral Vascular Diseases (Toole, Siekert and Whisnant, eds.), 133

Functional Behavior of the Vascular Mechanisms of the Brain (Mchedlishvili), 419

Bundle branch block

- Wenckebach periods in, 79

Burdon-Sanderson, Sir John Scott

- pioneer in electrophysiology, 1

Bypass

- cardiopulmonary. *See* Cardiopulmonary bypass

C**Calcification**

- aortic homograft valve replacement, 763

Cardiac index

- arterial hypoxemia following acute myocardial infarction, 641
- hypovolemia in shock due to acute myocardial infarction, 653

Cardiac output

- Chagas' heart disease, 879
- coronary and systemic hemodynamic effects of pacing in complete heart block, 839
- electrical stimulation of carotid sinus nerves, 269
- hemodynamic studies in chronic uremia, 87
- measurement of instantaneous blood flow velocity and pressure with catheter-tip velocity probe, 603
- oxygen breathing in children with anemia, 493
- physical training in management of coronary heart disease, 143
- plasma renin activity, 563

Cardiology

- multiple dipole electrocardiography, 687
- in left ventricular hypertrophy, 697
- in right ventricular hypertrophy, 711

Cardiomegaly

- therapy for hypertension with azotemia, 893

Cardiomyopathy

- aortic homograft valve replacement, 763
- ultrasound localization of left ventricular outflow obstruction, 3

Cardiopulmonary bypass

- acute pulmonary edema, 823

Cardiopulmonary disease

- Advances in Cardiopulmonary Disease, vol. IV* (Banyai and Gordon, eds.), 133

Cardiothoracic ratio

- aortic homograft valve replacement, 763

- Carotid arteries**
Congenital Anomalies of the Carotid Arteries (Lie), 747
 subclavian steal syndrome, 871
- Carotid sinus nerves**
 circulatory effects of electrical stimulation of, 269
 A-V conduction in atrial fibrillation, 71
- Catecholamines**
 urinary excretion in myocardial infarction, 473
- Catheters and catheterization**
 coarctation of aorta in infancy, 385
 measurement of instantaneous blood flow velocity and pressure with catheter-tip velocity probe, 603
 multiple dipole electrocardiography
 in left ventricular hypertrophy, 697
 in right ventricular hypertrophy, 711
 study of A-V conduction using premature atrial stimulation and His bundle recordings, 61
 transposition of the great arteries, 237
 tricuspid atresia with increased pulmonary blood flow, 399
- Cerebral blood flow**
 regulation in complete heart block, 863
- Cerebral perfusion**
 regulation of cerebral blood flow in complete heart block, 863
- Cerebrovascular disease**
Cerebral Vascular Diseases (Toole, Siekert, and Whisnant, eds.), 133
- Chagas' heart disease**
 degeneration of cardiac nerves in, 879
- Chamber dissection technic**
 ECG criteria for diagnosis of left ventricular hypertrophy, 185
- Chest pains**
 left heart hemodynamics during angina pectoris induced by atrial pacing, 483
 prodromata in acute myocardial infarction, 463
 urinary catecholamine excretion in myocardial infarction, 473
- Children and infants**
 anemia, hemodynamic responses to oxygen breathing, 493
 congenital pulmonary stenosis resulting from dysplasia of valve, 43
 effect of site of shunt on left-heart-volume characteristics in ventricular septal defect and patent ductus arteriosus, 411
Handbook of Pediatric Cardiology (Krovetz, Gessner and Schiebler), 598
 hemolytic anemia and ball variance, 55
 hypertension, primary pulmonary, 583
 hypoglycemia and acute congestive heart failure, 209
 infants
 coarctation of the aorta, 385
 hypoglycemia and congestive heart failure, 209
 transposition of the great arteries, 237
 leukemic heart disease, 575
 spectrum of pulmonary vascular disease in transposition of the great arteries, 31
- Chinese**
 ST-segment depression after exercise in middle-aged Chinese men, 315
- Chloride space**
 relation of extracellular fluid volume to arterial pressure during drug-induced saluresis, 349
- Cholesterol**
 anticholesterol drugs, 915
 differences in bile acid excretion in primary hypercholesteremia compared to hypercholesteremia and hypertriglyceridemia, 13
 long-time study of blood lipids, 915
- Chromatography**
 differences in bile acid excretion in hypercholesteremia and combined hypercholesteremia and hypertriglyceridemia, 13
- Chronic renal failure**
 hemodynamic and body composition changes following bilateral nephrectomy, 367
- Cigarette smoking**
 ST-segment depression after exercise in middle-aged Chinese men, 315
- Cineangiography**
 ejection click of valvular pulmonic stenosis, 631
- Cinearteriograms**
 progressive muscular dystrophy with myocardial involvement, 377
- Circle of Willis**
 contribution to subclavian steal syndrome, 871
- Circulation**
 central venous oxygen saturation, 165
 collateral
 subclavian steal syndrome, 871
 congestion, hemodynamic studies in chronic uremia, 87
 coronary
 effects of glucagon on, 829
Diseases of Lymphatics and Lymph Circulation (Foldi), 936
 effect of electrical stimulation of carotid sinus nerves, 269
The Pulmonary Circulation and Interstitial Space (Fishman and Hecht, eds.), 949
- Circus movement**
 studies of atrial flutter with use of proximity electrodes, 513
- Coarctation of the aorta**
 in infancy, 385
 plasma renin activity in, 731
- Coincidence counting system**
 effect of glucagon on coronary circulation, 829
- Computer analysis**
 model for synthesis of ECG, 173
 multiple dipole electrocardiography, 687
 on-line analysis of exercise ECG, 935
- Conduction systems**
 effects of propranolol, 855
 His bundle rhythm, 527
 left posterior fascicular block in canine and primate hearts, 677
 study of A-V conduction, 61
 in atrial fibrillation and flutter, 71
 zone of concealment
 A-V conduction in atrial fibrillation, 71
 in bundle branches, 79
 See also Atrioventricular conduction
- Congenital anomalies**
 coarctation of the aorta, 385
Congenital Anomalies of the Carotid Arteries (Lie), 747
 pulmonary stenosis
 resulting from dysplasia of valve, 43
 right atrial enlargement, 227
 tricuspid atresia, with increased pulmonary blood flow, 399
- Congenital heart disease**
 coarctation of aorta, 385
 superior vena cava-right pulmonary artery anastomosis in, 777
- Congestive heart failure**
 acute pulmonary edema, 823
 coarctation of aorta in infancy, 385
 hemodynamic studies in chronic uremia, 87
 hypoglycemia and acute, 209

- progressive muscular dystrophy with myocardial involvement, 377
- protein content in lymph and edema fluids in congestive heart failure, 623
- therapy for hypertension with azotemia, 893
- tricuspid atresia with increased pulmonary blood flow, 399
- Contraction**
 - isovolumic, effects of atrial pacing on left ventricular performance in heart disease, 615
- Coronary arteries**
 - disease
 - effect of acute digitalization on the hemodynamic response to exercise in, 453
 - effect of physical training, 433
 - long-time study of blood lipids, 915
 - myocardial lactate metabolism, 97, 113
 - physical training in management of, 143
 - myocardial perfusion utilizing scintillation photography and Xenon, 277
 - progressive muscular dystrophy with myocardial involvement, 377
- Coronary heart disease**
 - The Prevention of Coronary Heart Disease* (Mulcahy and Hickey), 948
 - stress ECG in evaluation of surgical revascularization, 297
 - therapy of angina pectoris, 847
- Creatinine clearance**
 - excretion of tritiated digoxin before and after unilateral nephrectomy, 555
- Cysts**
 - intrapericardial cyst formation in constrictive pericarditis, 665
- D**
- Decremental conduction**
 - A-V conduction in atrial fibrillation, 71
- Denervation**
 - hemodynamic performance of transplanted human heart, 447
- Depolarization**
 - model for synthesis of ECG, 173
 - multiple dipole electrocardiography, 687
- Dextran**
 - hypovolemia in shock due to acute myocardial infarction, 653
- Diagnosis**
 - left ventricular hypertrophy
 - ECG criteria for, 185
 - multiple dipole electrocardiography, 687
 - in left ventricular hypertrophy, 697
 - right ventricular hypertrophy, 711
 - A Primer of Cardiac Diagnosis* (Luisada and Sainani), 135
- Dialysis**
 - plasma renin activity, 563
- Diazoxide**
 - for hypertension with azotemia, 893
- Diet**
 - long-time study of blood lipids, 915
- Diffusing capacity**
 - arterial hypoxemia following acute myocardial infarction, 641
- Digitalis**
 - effect on hemodynamic response to exercise in coronary artery disease, 453
- Digoxin, tritiated**
 - excretion before and after unilateral nephrectomy, 555
- Dipole activities**
 - in assessment of left ventricular hypertrophy, 719

Circulation, Volume XL, December 1969

- model for synthesis of ECG, 173
- multiple dipole electrocardiography, 687
 - in left ventricular hypertrophy, 697
 - in right ventricular hypertrophy, 711
- Drug therapy**
 - primary pulmonary hypertension, 583

E

- Echo phenomenon**
 - ventricular echo beats elicited by induced ventricular premature beats, 337
- Echograms**
 - ultrasound in diagnosis and evaluation of therapy in idiopathic hypertrophic subaortic stenosis, 905
- Ectopic unifocal impulse formation**
 - studies of atrial flutter with proximity electrodes, 513
- Edema**
 - acute pulmonary edema in absence of LV failure, 823
 - protein content in lymph and edema fluids in congestive heart failure, 623
- Ejection click**
 - ultrasonic Doppler method for timing of valvular movement, 197
 - of valvular pulmonic stenosis, 631
- Ejection time**
 - influence of amyl nitrite inhalation on systolic time intervals, 327
- Electrical activity**
 - multiple dipole electrocardiography, 687
 - study of A-V conduction, 61
- Electrocardiography**
 - A-V conduction system in tricuspid atresia, 217
 - coarctation of aorta in infancy, 385
 - congenital pulmonary stenosis resulting from dysplasia of valve, 43
 - criteria for diagnosis of left ventricular hypertrophy, 185
 - exercise
 - on-line analysis of, 935
 - therapy of angina pectoris, 847
 - findings in cardiac transplantation, 289
 - left posterior fascicular block in canine and primate hearts, 677
 - model for synthesis of electrocardiogram, 173
 - multiple dipole, 687
 - in left ventricular hypertrophy, 697
 - in right ventricular hypertrophy, 711
 - myocardial lactate metabolism, 97
 - during angina induced by atrial pacing, 113
 - during angina precipitated by exercise, 97
 - Practical Evaluation of the Electrocardiogram: A Synopsis of Differential Diagnosis* (Schroeder and Suedoff), 947
 - prodromata in acute myocardial infarction, 463
 - QRS notching and slurring
 - localization of myocardial scarring, 927
 - ST-segment depression after exercise in middle-aged Chinese men, 315
 - stress ECG in evaluation of surgical revascularization of heart, 297
 - studies of atrial flutter with proximity electrodes, 513
 - tricuspid atresia with increased pulmonary blood flow, 399
 - use of dipole moment in assessment of LV hypertrophy, 719
- Electrode catheter technic**
 - study of A-V conduction, 61

Electrodes

- atrial flutter studied with proximity electrodes, 513
- endocardial, large right atrial thrombi surrounding transvenous pacemakers, 661
- long-term pervenous atrial pacing, 535

Electrograms

- His bundle, effects of propranolol on cardiac conduction, 855

Electrolyte balance

- plasma renin activity, 563

Electrophysiology

- Sir John Scott Burdon-Sanderson, pioneer in, 1
- multiple dipole electrocardiography, 687
- in left ventricular hypertrophy, 697
- in right ventricular hypertrophy, 711

Embolism

- cerebral air, acute pulmonary edema, 823
- recurrent left atrial myxoma, 673

Emphysema

- A Treatment Manual for Patients with Pulmonary Emphysema* (Barach), 949

Endocardial cushion defect

- postoperative evaluation of mitral valve function in ostium primum defect with cleft mitral valve, 21

Epinephrine

- hypoglycemia and acute congestive heart failure, 209

Esophageal potential-difference curve

- studies of atrial flutter with proximity electrodes, 513

Excitation

- left posterior fascicular block in canine and primate hearts, 677

Exercise

- cardiovascular abnormalities following surgery for left-to-right shunts, 785
- cardiovascular pharmacology of propranolol, 501
- effect of acute digitalization on hemodynamic response to exercise in coronary artery disease, 453
- effect of physical training in manifest ischemic heart disease, 433
- electrical stimulation of carotid sinus nerves, 269
- Ergometry in Cardiology* (Denolin, Konig, Messin and Degré, eds.), 946
- heart rate after cardiac transplantation, 437
- hemodynamic performance of transplanted human heart, 447
- in management of coronary artery disease, 143
- myocardial lactate metabolism, left ventricular function and S-T segment depression during angina precipitated by exercise, 97

tests

- ECG in evaluation of surgical revascularization, 297
- on-line analysis, 935
- ST-segment depression after exercise in middle-aged Chinese men, 315
- therapy of angina pectoris with propranolol and long-acting nitrates, 847

Exit block

- atrial tachysystole and, 179

Extracellular fluids

- protein content in lymph and edema fluids in congestive heart failure, 623
- relation of plasma to interstitial fluid volume in essential hypertension, 357
- relation to arterial pressure during drug-induced saluresis, 349

Extrasystoles

- ventricular echo beats elicited by induced ventricular premature beats, 337

F**Fascicular block**

- left posterior fascicular block in canine and primate hearts, ECG study, 677

Fluids

- extracellular. *See* Extracellular fluids

Flutter, atrial

- proximity electrodes used for studying, 513

Frank lead system

- use of dipole moment in assessment of LV hypertrophy, 719

Furosemide

- for hypertension with azotemia, 893
- relation of extracellular fluid volume to arterial pressure during drug-induced saluresis, 349

G**Gases, blood**

- regulation of cerebral blood flow in complete heart block, 863

Glenn procedure

- superior vena cava-right pulmonary artery anastomosis in congenital heart disease, 777

Glucagon

- effects on coronary circulation, 829
- hypoglycemia and acute congestive heart failure, 209

Glycogen

- hypoglycemia and acute congestive heart failure, 209

Grafts

- aortic homograft valve replacement, 763
- rejection

- ECG findings in cardiac transplantation, 289

Grid system

- use of dipole moment in assessment of LV hypertrophy, 719

H**Heart**

- CIBA Collection of Medical Illustrations, Volume 5, Heart* (Netter), 746

Heart beats

- ventricular echo beats elicited by induced ventricular premature beats, 337

Heart block

- complete
- coronary and systemic hemodynamic effects of pacing, 839
- regulation of cerebral blood flow, 863
- paroxysmal junctional tachycardia, 919

Heart failure

- central venous oxygen saturation, 165
- congestive. *See* Congestive heart failure, 209
- protein content in lymph and edema fluids in congestive heart failure, 623

Heart rate

- after cardiac transplantation, 437
- Chagas' heart disease, 879
- effects of atrial pacing on left ventricular performance in heart disease, 615
- effects of propranolol and long-acting nitrates on angina pectoris, 847
- influence of amyl nitrite inhalation on systolic time intervals in ischemic heart disease and normal patients, 327
- oxygen breathing in children with anemia, 493

Heart size

- electrical stimulation of carotid sinus nerves, 269

- Heart sounds**
acute rejection following cardiac transplantation, 155
See also Auscultation
- Hematocrit**
oxygen breathing in children with anemia, 493
- Hemodialysis**
hemodynamic and body composition changes following bilateral nephrectomy in chronic renal failure, 367
hemodynamic studies in chronic uremia, 87
- Hemodynamic studies**
atrial pacing and left ventricular performance, 615
cardiac pacing in complete heart block, 839
cardiovascular abnormalities following surgery for left-to-right shunts, 785
in chronic uremia, 87
effect of digitalis on exercise in coronary artery disease, 453
ejection click of valvular pulmonic stenosis, 631
following bilateral nephrectomy in chronic renal failure, 367
left heart during angina pectoris induced by atrial pacing, 483
progressive muscular dystrophy with myocardial involvement, 377
responses to oxygen breathing in children with severe anemia, 493
superior vena cava-right pulmonary artery anastomosis in congenital heart disease, 777
tetralogy of Fallot, 803
transplanted human heart, 447
- Hemolysis**
delayed onset of hemolytic anemia in a child, indicator of ball variance of aortic valve prosthesis, 55
- Hemorheology**
Hemorheology: Proceedings of the First International Conference (Copley, ed.), 133
- Hepatitis**
hepatic injury caused by L-alpha-methyldopa, 589
- His bundle recordings**
effects of propranolol on cardiac conduction, 855
study of A-V conduction in atrial fibrillation and flutter, 71
study of A-V conduction using premature atrial stimulation, 61
- His bundle rhythm**, 527
- His-Purkinje system**
study of A-V conduction, 61
- Homografts**
aortic valve replacement, 763
- Hypercholesteremia**
bile acid excretion in primary, compared to combine hypercholesteremia and hypertriglyceridemia, 13
Hypercholesterolemia and Clinical Atherosclerosis (Reisel), 134
- Hyperlipidemia**
differences in bile acid excretion, 13
- Hypertension**
adrenal cortex, aldosterone and hypertension (report of International Workshop), 739
aldosterone, function of, 761
antihypertensive therapy, 893
with azotemia, therapy in, 893
development of prestenotic, plasma renin activity in coarctation of the aorta, 731
essential
relation of plasma to interstitial fluid volume in, 357
hemodynamic and body composition changes following bilateral nephrectomy in chronic renal failure, 367
pulmonary
in children, 583
spectrum of pulmonary vascular disease in transposition of the great arteries, 31
relation of extracellular fluid volume to arterial pressure during drug-induced saluresis, 349
renal
plasma renin activity, 563
ST-segment depression after exercise in middle-aged Chinese men, 315
- Hypertriglyceridemia**
bile acid excretion in primary hypercholesteremia compared to combined hypercholesteremia and hypertriglyceridemia, 13
- Hypertrophic obstructive cardiomyopathy**
ultrasound localization of left ventricular outflow obstruction, 3
- Hypertrophy**
childhood leukemic heart disease, 575
left ventricular
multiple dipole electrocardiography, 697
use of dipole moment in assessment of, 719
right ventricular
multiple dipole ECG, 711
tricuspid atresia with increased pulmonary blood flow, 399
ventricular, 697, 711, 719
left ventricular end-diastolic pressure in pulmonary stenosis, 887
- Hypoglycemia**
and acute heart failure, 209
- Hypoplasia, tubular**
coarctation of aorta in infancy, 385
- Hypoplastic left heart syndrome**
hypoglycemia and acute congestive heart failure, 209
- Hypotension**
relation of extracellular fluid volume to arterial pressure during drug-induced saluresis, 349
- Hypovolemia**
in shock associated with acute myocardial infarction, 653
- Hypoxemia**
arterial hypoxemia following acute myocardial infarction, 641
stress ECG in evaluation of surgical revascularization, 297
- Hypoxia**. *See* Anoxia

I

- Idiopathic hypertrophic subaortic stenosis**
ultrasound in diagnosis and evaluation of therapy in, 905
ultrasound localization of left ventricular outflow obstruction in hypertrophic obstructive cardiomyopathy, 3
- Idiopathic right atrial enlargement**, 227
- Immunosuppressive agents**
acute rejection following cardiac transplantation, 155
- Incompetence**
aortic homograft valve replacement, 763
- Infants**. *See* Children and infants
- Infarction**
ECG diagnosis of, 927
See also Myocardial infarction
- Interstitial fluid volume**
relation of plasma to, in essential hypertension, 357

Intraventricular conduction

effects of propranolol, 855

Ischemia

vertebrobasilar, subclavian steal syndrome, 871

Ischemic heart disease

amyl nitrite inhalation, 327

effect of physical training, 433

on-line analysis of exercise ECG, 935

Isoproterenol

heart rate after cardiac transplantation, 437

hemodynamic performance of transplanted human heart, 447

primary pulmonary hypertension, 583

ultrasound and idiopathic hypertrophic subaortic stenosis, 905

Isosorbide dinitrate

therapy of angina pectoris, 847

Isotopes

differences in bile acid excretion, 13

Isovolumic contraction

effects of atrial pacing on left ventricular performance in heart disease, 615

K**Kidneys**

chronic renal failure

hemodynamic and body composition changes following bilateral nephrectomy in, 367

excretion of tritiated digoxin before and after unilateral nephrectomy, 555

plasma renin activity

in coarctation of the aorta, pathogenesis of prestenotic hypertension, 731

in end-stage kidney disease, 563

L**Leaflets**

aortic homograft valve replacement, 763

Left axis deviation

A-V conduction system in tricuspid atresia, 217

Left bundle branches

A-V conduction system in tricuspid atresia, 217

Left posterior fascicular block

in canine and primate hearts, ECG study, 677

Left ventricle

effect of glucagon on coronary circulation, 829

end-diastolic pressure

effect of acute digitalization on hemodynamic response to exercise in coronary artery disease, 453

elevation consequent to pulmonary stenosis, 887

failure

acute pulmonary edema in absence of, 823

filling pressure

cardiovascular pharmacology of propranolol, 501

functions

effect of atrial pacing in patients with heart disease, 615

effect of site of shunt on left heart-volume characteristics in children with ventricular septal defect and patent ductus arteriosus, 411

sequential alterations in myocardial lactate metabolism, S-T segments and, during angina induced by atrial pacing, 113

hypertrophy

ECG criteria for diagnosis, of, 185

multiple dipole electrocardiography, 697, 719

tricuspid atresia with increased pulmonary blood flow, 399

use of dipole moment in assessment of, 719

outflow tract

in hypertrophic obstructive cardiomyopathy, 3

postoperative evaluation of mitral valve function in ostium primum defect with cleft mitral valve, 21

ultrasound and idiopathic hypertrophic subaortic stenosis, 905

volume

cardiovascular pharmacology of propranolol, 501

weight

use of dipole moment in assessment of LV hypertrophy, 719

Lesions

acute pulmonary edema, 823

subclavian steal syndrome, 871

transposition of the great arteries, 237

Leukemia

childhood leukemic heart disease, 575

Lipids and lipoproteins

long-time study of blood lipids, 915

Liver

hepatic injury caused by L-alpha-methyldopa, 589

hypoglycemia and acute congestive heart failure, 209

Lungs

arterial hypoxemia following acute myocardial infarction, 641

spectrum of pulmonary vascular disease in transposition of the great arteries, 31

Lymph

protein content in lymph and edema fluids in congestive heart failure, 623

Lymphatics

Diseases of Lymphatics and Lymph Circulation (Foldi), 936

M**Males**

ST-segment depression after exercise in middle-aged Chinese men, 315

Mammary artery implantation

stress ECG in evaluation of surgical revascularization, 297

Measurements

instantaneous blood flow velocity and pressure with catheter-tip velocity probe, 603

Methoxamine

ultrasound localization of left ventricular outflow obstruction in hypertrophic obstructive cardiomyopathy, 3

Methyldopa

hepatic injury caused by L-alpha-methyldopa, 589

Mitral leaflets

ultrasound localization of left ventricular outflow obstruction in hypertrophic obstructive cardiomyopathy, 3

Mitral stenosis

left atrial transport in, 545

left ventricular end-diastolic pressure in pulmonary stenosis, 887

Mitral valve

surgery

postoperative evaluation of mitral valve function in ostium primum defect with cleft mitral valve (partial form of atrioventricular canal), 21

ultrasonic Doppler method for timing valvular movements, 197

- ultrasound and idiopathic hypertrophic subaortic stenosis, 905
- Models**
 - multiple dipole electrocardiography, 687
 - in left ventricular hypertrophy, 697
 - in right ventricular hypertrophy, 711
- Morphologic findings**
 - A-V conduction system in tricuspid atresia, 217
 - idiopathic right atrial enlargement, 227
- Multiple dipole electrocardiography**, 687
 - in left ventricular hypertrophy, 711
 - in right ventricular hypertrophy, 711
- Murmurs**
 - intrapericardial cyst formation in constrictive pericarditis simulating tricuspid stenosis, 665
 - postoperative evaluation of mitral valve function in ostium primum defect with cleft mitral valve, 21
- Muscles**
 - blood flow, physical training in management of coronary heart disease, 143
- Muscular dystrophy**
 - cardiac involvement in progressive, 377
- Myocardial infarction**
 - acute
 - arterial hypoxemia following, 641
 - hypovolemia in shock, 653
 - central venous oxygen saturation, 165
 - localization of site of scarring by high-frequency components, 927
 - myocardial perfusion utilizing scintillation photography and Xenon, 277
 - prodromata in acute, 463
 - urinary catecholamine excretion, 473
- Myocardium**
 - blood flow
 - effects of glucagon on, 829
 - disease
 - aortic homograft valve replacement, 763
 - ischemia
 - effect of acute digitalization on hemodynamic response to exercise in coronary artery disease, 453
 - myocardial lactate metabolism, S-T segment depression during angina precipitated by exercise, 97
 - lactate metabolism
 - left ventricular function, S-T segment depression during exertional angina, 97
 - sequential alterations in S-T segments, left ventricular function and, during angina induced by atrial pacing, 113
 - lactate-pyruvate exchange
 - cardiovascular pharmacology of propranolol, 501
 - left heart hemodynamics during angina pectoris induced by atrial pacing, 483
 - localization of site of myocardial scarring by high-frequency components, 927
 - oxygen consumption
 - effect of glucagon on coronary circulation, 829
 - perfusion utilizing radioactive Xenon and scintillation photography, 277
- Myxoma**
 - recurrent left atrial myxoma, 673
- N**
- Necropsy findings**
 - childhood leukemic heart disease, 575
 - congenital pulmonary stenosis, 43
- progressive muscular dystrophy with myocardial involvement**, 377
- tricuspid atresia with increased pulmonary blood flow**, 399
- Nephrectomy**
 - bilateral, hemodynamic and body composition changes following, in chronic renal failure, 367
 - unilateral, excretion of tritiated digoxin, 555
- Nervous system**
 - degeneration of cardiac nerves in Chagas' disease, 879
- Nitrates**
 - therapy of angina pectoris with, 847
- Nitrogen**
 - blood urea nitrogen, therapy for hypertension with azotemia, 893
- Nitroglycerin**
 - left heart hemodynamics during angina pectoris induced by atrial pacing, 483
 - therapy of angina pectoris, 847
- Nodal His interval**
 - study of A-V conduction, 61
- Norepinephrine**
 - relation of extracellular fluid volume to arterial pressure during drug-induced saluresis, 349
- O**
- Obstructions**
 - subaortic, postoperative evaluation of mitral valve function in ostium primum defect with cleft mitral valve, 21
 - ultrasound localization of left ventricular outflow obstructioi in hypertrophic obstructive cardiomyopathy, 3
- Occlusive disease**
 - thrombosis, 755
- Ostium primum defect**
 - postoperative evaluation of mitral valve function in, with cleft mitral valve, 21
- Outflow tract**
 - in hypertrophic obstructive cardiomyopathy, 3
 - postoperative evaluation of mitral valve function in ostium primum defect with cleft mitral valve, 21
 - results of repair of tetralogy of Fallot, 803
 - ultrasound and idiopathic hypertrophic subaortic stenosis, 905
- Oxygen**
 - arterial hypoxemia following acute myocardial infarction, 641
 - central venous oxygen saturation
 - correlation with mixed venous oxygen in severely ill patients, 165
 - consumption
 - cardiovascular pharmacology of propranolol, 501
 - effect of glucagon on coronary circulation, 829
 - myocardial lactate metabolism
 - during angina induced by atrial pacing, 113
 - during angina induced by exercise, 97
 - hemodynamic responses to oxygen breathing in children with severe anemia, 493
- P**
- Pacing and pacemakers**
 - atrial
 - effect on left ventricular performance in heart disease, 615
 - left heart hemodynamics during angina pectoris induced by, 483

- long-term peravenous, 535
- myocardial lactate metabolism, S-T segments and left ventricular function during angina induced by atrial pacing, 113
- circulatory dynamics during, regulation of cerebral blood flow in complete heart block, 863
- hemodynamic effects of cardiac pacing in complete heart block, 839
- left atrial transport in mitral stenosis, 545
- pacemakers
 - atrial tachysystole and exit block, 179
 - proxysmal junctional tachycardia, 919
 - site of pacemaker
 - His bundle rhythm, 527
 - transvenous pacemakers
 - large right atrial thrombi surrounding, 661
- Pain. *See* Chest pain
- Papilledema
 - therapy for hypertension with azotemia, 893
- Parasystole
 - ECG findings in cardiac transplantation, 289
- Parchment heart
 - sudden death in right atrial enlargement, 227
- Patent ductus arteriosus
 - cardiovascular abnormalities following surgery for left-to-right shunts, 785
 - left heart-volume characteristics, 411
- Pathologic studies
 - progressive muscular dystrophy with myocardial involvement, 377
 - tricuspid atresia with increased pulmonary blood flow, 399
- Pericardial effusion
 - sudden death in right atrial enlargement, 227
- Pericarditis
 - constrictive, intrapericardial cyst formation, 665
- Pericardium
 - intrapericardial cyst formation in constrictive pericarditis simulating tricuspid stenosis, 665
- Peripheral vascular resistance
 - electrical stimulation of carotid sinus nerves, 269
 - hemodynamic studies in chronic uremia, 87
 - plasma renin activity, 563
- Peritoneal dialysis
 - plasma renin activity, 563
- Pharmacology
 - cardiovascular pharmacology of propranolol, 501
 - primary pulmonary hypertension in child, response to drugs, 583
- Phonocardiography
 - acute rejection following cardiac transplantation, 155
 - ejection click of valvular pulmonic stenosis, 631
 - ultrasonic Doppler method for timing valvular movements, 197
- Physical training
 - in management of coronary artery disease, 143*See also* Exercise
- Plasma
 - relation to interstitial fluid volume in essential hypertension, 357
- Plasma renin activity
 - in coarctation of aorta, pathogenesis of prestenotic hypertension, 731
 - in end-state kidney disease, 563
 - relation of plasma to interstitial fluid volume in essential hypertension, 357
- Plasma volume
 - relation of extracellular fluid volume to arterial pressure during drug-induced saluresis, 349
- Platelets
 - effect of aspirin on bleeding and, 757
- Pleural effusion
 - protein content in lymph and edema fluids in congestive heart failure, 623
- Postmortem findings
 - idiopathic right atrial enlargement, 227
- Prednisone
 - acute rejection following cardiac transplantation, 155
- Premature atrial stimulation
 - study of A-V conduction in man using, and His bundle recordings, 61
- Pressor response
 - relation of extracellular fluid volume to arterial pressure during drug-induced saluresis, 349
- Pressure
 - central venous, hypovolemia in shock due to acute myocardial infarction, 653
 - intracardiac, ejection click of valvular pulmonic stenosis, 631
 - left atrial, acute pulmonary edema, 823
 - measurement of
 - with catheter-tip velocity probe, 603
 - oncotic
 - protein content in lymph and edema fluids in congestive heart failure, 623
 - right atrial, Chagas' heart disease, 879
 - See also* Blood pressure
- Procainamide
 - effects of propranolol on cardiac conduction, 855
- Prodromal symptoms
 - in acute myocardial infarction, 463
- Propranolol
 - cardiovascular pharmacology, 501
 - effects on cardiac conduction, 855
 - therapy of angina pectoris, 847
 - ultrasound and idiopathic hypertrophic subaortic stenosis, 905
- Prostheses
 - aortic valve
 - delayed onset of hemolytic anemia in a child, 55
 - silicone rubber ball degeneration
 - hemolytic anemia and ball variance, 55
 - Starr-Edwards ball-valve
 - hemolytic anemia and ball variance, 55
- Protein
 - content in lymph and edema fluids in congestive heart failure, 623
- Pulmonary arteries
 - ejection click of valvular pulmonic stenosis, 631
 - measurement of instantaneous blood flow velocity and pressure with catheter-tip velocity probe, 603
 - pressure
 - hypovolemia in shock due to acute myocardial infarction, 653
 - Pulmonary Arteriovenous Fistula* (Sluiter-Erlinga and Sluiter), 948
 - superior vena cava-right pulmonary artery anastomosis in congenital heart disease, 777
- Pulmonary capillaries
 - The Pulmonary Capillary Network in Man: A Physiopathological Study* (Englert), 597
- Pulmonary congestion
 - urinary catecholamine excretion in myocardial infarction, 473
- Pulmonary incompetence
 - results of repair of tetralogy of Fallot, 803
- Pulmonary stenosis
 - congenital, resulting from dysplasia of valve, 43
 - LV diastolic pressure elevation, 887
 - spectrum of pulmonary vascular disease in transposition of the great arteries, 31

- superior vena cava-right pulmonary artery anastomosis in congenital heart disease, 777
- Pulmonary vascular bed**
 - results of repair of tetralogy of Fallot, 803
- Pulmonary vascular disease**
 - in transposition of the great arteries, 31
- Pulmonary vascular reactivity**
 - cardiovascular abnormalities following surgery for left-to-right shunts, 785

Q

- QRS notching and slurring**
 - localization of myocardial scarring, 927

R

- Radioisotopes**
 - differences in bile acid excretion, 13
 - myocardial perfusion utilizing scintillation photography and Xenon, 277
- Reentry mechanisms**
 - proxysmal junctional tachycardia, 919
- Refractory ventricular irritability**
 - long-term pervenous atrial pacing, 535
- Reinnervation**
 - heart rate after cardiac transplantation, 437
- Rejection**
 - ECG findings in cardiac transplantation, 289
 - following cardiac transplantation
 - phonocardiographic and ultrasound observations, 155
- Renal artery**
 - insufficiency
 - therapy for hypertension with azotemia, 893
- Renal transplant donors**
 - excretion of tritiated digoxin before and after unilateral nephrectomy, 555
- Renin**
 - plasma renin activity. *See* Plasma renin activity
- Repolarization**
 - model for synthesis of ECG, 173
- Rhythms**
 - A-V nodal rhythms
 - His bundle rhythm, 527
- Right bundle-branch block**
 - left posterior fascicular block in canine and primate hearts, 677
- Right bundle-branch potential**
 - study of A-V conduction, 61
 - in atrial fibrillation, 71
 - in tricuspid atresia, 217
- Rubidium-84**
 - effect of glucagon on coronary circulation, 829

S

- Saluresis**
 - relation of extracellular fluid volume to arterial pressure during drug-induced saluresis, 349
- Scintiphotography**
 - myocardial perfusion utilizing radioactive Xenon, 277
- Serum**
 - biochemical changes in
 - hepatic injury caused by L-alpha-methyl dopa, 589
- Serum creatinine**
 - therapy for hypertension with azotemia, 893
- Sewell operation**
 - stress ECG in evaluation of surgical revascularization, 297

Shock

- central venous oxygen saturation, 165
- hypovolemia in shock due to acute myocardial infarction, 653

Shunts

- cardiovascular abnormalities following surgery for left-to-right shunts, 785
- effect of site of, on left heart-volume characteristics in ventricular septal defect and patent ductus arteriosus, 411

Sinus bradycardia

- long-term pervenous atrial pacing, 535

Sodium balance

- plasma renin activity, 563
- relation of extracellular fluid volume to arterial pressure during drug-induced saluresis, 349

Sounds, heart

- diagnosis of extra heart sounds, 197
- ejection click, of valvular pulmonic stenosis, 631
- influence of amyl nitrite inhalation on systolic time intervals in ischemic heart disease and normal patients, 327
- ultrasonic Doppler method for timing valvular movements, 197

ST segments

- on-line analysis of exercise ECG, 935
- propranolol and long-acting nitrates for angina pectoris, 847
- sequential alterations in myocardial lactate metabolism, left ventricular function during angina induced by atrial pacing, 113
- temporal relationships of myocardial lactate metabolism, left ventricular function and S-T segment depression during exertional angina, 97

Starling's law of the heart

- hemodynamic performance of transplanted human heart, 447

Starr-Edwards aortic valve prosthesis

- hemolytic anemia and ball variance, 55

Stenosis

- aortic homograft valve replacement, 763
- ejection click of valvular pulmonic stenosis, 631
- intrapericardial cyst formation in constrictive pericarditis simulating tricuspid stenosis, 665
- pulmonary. *See* Pulmonary stenosis

Stouffer Prize

- aldosterone and, 761

Stress

- ECG in evaluation of surgical revascularization, 297
- prodromata in acute myocardial infarction, 463

Stroke volume

- influence of amyl nitrite inhalation on systolic time intervals, 327
- oxygen breathing in children with anemia, 493

Subclavian steal syndrome

- contribution of the circle of Willis to, 871

Superior vena cava

- anastomosis to right pulmonary artery in congenital heart disease, 777

Surface potential

- use of dipole moment in assessment of LV hypertrophy, 719

Surgery

- The Cardiac Surgical Patient: Pathophysiologic Considerations and Nursing Care* (Powers and Storlie), 748
- Clinical Aspects of Operable Heart Disease* (Kahn, Strang and Wilson), 945
- coarctation of aorta in infancy, 385
- tetralogy of Fallot, 803
- Modern Trends in Cardiac Surgery*, vol. 2 (Wooler and Aberdeen, eds.), 419

- nephrectomy
 - excretion of tritiated digoxin before and after unilateral, 555
 - hemodynamic and body composition changes following, 367
 - open-heart
 - acute pulmonary edema, 823
 - postoperative evaluation
 - aortic homograft valve replacement, 763
 - left to right shunts, 785
 - mitral valve function in ostium primum defect with cleft mitral valve, 21
 - Progress in Surgery, Vol. 7* (Allgower, Bergentz, Calne and Gruber, eds.), 747
 - shunts, cardiovascular abnormalities following surgery, 785
 - transposition of the great arteries
 - spectrum of pulmonary vascular disease, 31
 - valve replacement
 - acute pulmonary edema, 823
 - aortic homograft, 763
 - stress ECG for evaluation of, 297
 - Sympathetic nervous system
 - left heart hemodynamics during angina pectoris induced by atrial pacing, 483
 - Syncope
 - sudden death in right atrial enlargement, 227
 - Systolic anterior movement
 - ultrasound localization of left ventricular outflow obstruction in hypertrophic obstructive cardiomyopathy, 3
 - Systolic time intervals
 - amyl nitrite inhalation, in normal subjects and in ischemic heart disease, 327
- T**
- Tachycardia
 - atrial tachysystole and exit block, 179
 - paroxysmal junctional
 - termination by right ventricular stimulation, 919
 - Taiwan cardiovascular study
 - ST-segment depression after exercise in middle-aged Chinese man, 215
 - Teaching devices
 - model for synthesis of ECG, 173
 - Telangiectasia
 - Pulmonary Arteriovenous Fistula* (Sluiter-Erlinga and Sluiter), 948
 - Tension-time index
 - physical training in management of coronary heart disease, 143
 - Tetralogy of Fallot
 - long-term follow-up, 803
 - superior vena cava-right pulmonary artery anastomosis in congenital heart disease, 777
 - Thrombosis, 755
 - large right atrial thrombi surrounding permanent transvenous pacemakers, 661
 - Tolazoline
 - for primary pulmonary hypertension, 583
 - Transmural infarction
 - prodromata in acute myocardial infarction, 463
 - Transplantation
 - ECG findings, 289
 - heart rate after, 437
 - hemodynamic performance of transplanted human heart, 447
 - rejection following
 - phonocardiographic and ultrasound observation, 155

- Transposition of the great arteries
 - anatomy, birth and death characteristics, 237
 - life tables, 237
 - natural history of, 237
 - obstructive pulmonary vascular disease in, 31
- Transposition of the great vessels
 - hypoglycemia and acute congestive heart failure, 209
 - tricuspid atresia with increased pulmonary blood flow, 399
- Tricuspid atresia
 - A-V conduction system, 217
 - with increased pulmonary blood flow, 399
 - intra-pericardial cyst formation in constrictive pericarditis simulating tricuspid stenosis, 665
- Trifascicular blocks
 - Wenckebach periods in the bundle branches, 79
- Tritiated digoxin
 - excretion of, before and after unilateral nephrectomy, 555
- Tubular hypoplasia
 - coarctation of aorta in infancy, 385
- Tumors
 - recurrent left atrial myxoma, 673

U

- Uhl's anomaly
 - sudden death in right atrial enlargement, 227
- Ultrasound
 - acute rejection following cardiac transplantation, 155
 - diagnosis and therapy of idiopathic hypertrophic subaortic stenosis, 905
 - localization of left ventricular outflow obstruction in hypertrophic obstructive cardiomyopathy, 3
 - ultrasonic Doppler method for timing of valvular movement, 197
- Ultrastructure
 - hypoglycemia and acute congestive heart failure, 209
- Uremia
 - hemodynamic studies in, 87
 - following bilateral nephrectomy, 367
- Urine
 - catecholamine excretion in myocardial infarction, 473

V

- Vagal stimulation
 - heart rate after cardiac transplantation, 437
- Valsalva maneuver
 - Chagas' heart disease, 879
 - therapy of angina pectoris, 847
- Valves
 - aortic homograft for replacement of, 763
 - congenital pulmonary stenosis resulting from dysplasia of valve, 43
 - surgery. *See under Surgery*
 - ultrasonic Doppler method for timing valvular movements, 197
- Valvular pulmonic stenosis
 - ejection click, 631
- Vascular resistance
 - hemodynamic responses to oxygen breathing in children with severe anemia, 493
- Vectorcardiography
 - multiple dipole electrocardiography, 687
 - in left ventricular hypertrophy, 697
 - in right ventricular hypertrophy, 711

Velocity

measure of instantaneous blood flow velocity and pressure with catheter-tip velocity probe, 603

Vena cava

superior vena cava-right pulmonary artery anastomosis in congenital heart disease, 777

Venous pressure

heart rate after cardiac transplantation, 437

Venous tone

electrical stimulation of carotid sinus nerves, 269

Ventilation

arterial hypoxemia following acute myocardial infarction, 641

Ventricles

echo beats elicited by induced ventricular premature beats, 337

failure

effect of acute digitalization on hemodynamic response to exercise in coronary artery disease, 453

filling

hemodynamic performance of transplanted human heart, 447

function

effect of acute digitalization on hemodynamic response to exercise in coronary artery disease, 453

hemodynamic performance of transplanted human heart, 447

myocardial lactate metabolism, S-T segment depression during angina precipitated by exercise, 97

hypertrophy

multiple dipole electrocardiography, 711

left. See Left ventricles**premature ventricular beats**

study of A-V conduction in atrial fibrillation, 71

right ventricular compression

sudden death in right atrial enlargement, 227

volume

effect of shunt on left heart-volume characteristics, 411

Ventricular end-diastolic pressures

left heart hemodynamics during angina pectoris induced by atrial pacing, 483

Ventricular septal defects

A-V conduction system in tricuspid atresia, 217

cardiovascular abnormalities following surgery for left-to-right shunts, 785

left heart-volume characteristics, 411

spectrum of pulmonary vascular disease in transposition of the great arteries, 31

Vertebrobasilar ischemia

subclavian steal syndrome, 871

Vineberg operation

stress ECG in evaluation of surgical revascularization, 297

Volume

extracellular fluid volume. *See* Extracellular fluid

hemodynamic studies in chronic uremia, 87

plasma renin activity, 563

relation of extracellular fluid volume to arterial pressure during drug-induced saluresis, 349

W**Wall**

posterior wall thickness, acute rejection following cardiac transplantation, 155

Water balance

plasma renin activity, 563

Wenckebach periods

in bundle branches, 79

Wolff-Parkinson-White syndrome

paroxysmal junctional tachycardia, 919

X**Xenon**

myocardial perfusion utilizing scintillation photography and, 277

SUPPLEMENTS
to
CIRCULATION

An Official Journal of the American Heart Association

VOLUMES XXXIX AND XL
January-December 1969



AMERICAN HEART ASSOCIATION, INC.

SUPPLEMENTS

to

CIRCULATION

AN OFFICIAL JOURNAL OF THE AMERICAN HEART ASSOCIATION

44 East 23rd Street, New York, N. Y. 10010

EDITORS OF SUPPLEMENTS

JOHN ROSS, JR.
(*Circulation*)

EUGENE BRAUNWALD, Chairman

THEODORE COOPER
(*Circulation Research*)

EDITORIAL BOARD

Carleton R. Treadwell, *Council on Arteriosclerosis*

Harris B. Shumacker, Jr., *Council on Cardiovascular Surgery*

Herbert N. Hultgren, *Council on Clinical Cardiology*

Patrick J. Mulrow, *Council on High Blood Pressure Research*

William B. Kannel, *Council on Epidemiology*

Jere H. Mitchell, *Council on Basic Science*

H. Edward Holling, *Council on Circulation*

W. A. Krehl, *Council Coordinating Committee for Community Program*

Benedict F. Massell, *Council on Rheumatic Fever and Congenital Heart Disease*

Fletcher H. McDowell, *Council on Cerebrovascular Disease*

Supplements to CIRCULATION will be published occasionally for binding annually in a separate volume entitled Supplements to CIRCULATION. Each supplement's page numbers will begin with page one. Supplements to CIRCULATION will be indexed separately at the end of the year.

PUBLICATIONS COMMITTEE, AMERICAN HEART ASSOCIATION

EUGENE BRAUNWALD, Chairman
La Jolla, Calif.

CRAWFORD W. ADAMS
Nashville, Tenn.

SIMS GAYNOR
Sun City Center, Fla.

CARLETON R. TREADWELL
New York, N. Y.

CHARLES A. R. CONNOR
New York, N. Y.

MILTON C. PAIGE, JR.
Boston, Mass.

WALTER M. KIRKENDALL
Iowa City, Iowa

ROBERT H. FURMAN
Oklahoma City, Okla.

GORDON K. MOE
Utica, N. Y.

W. JAFE TAYLOR
Gainesville, Fla.

EDWARD S. ORGAIN
Durham, N. C.

HOWARD B. BURCHELL
Minneapolis, Minn.

JULIUS H. COMROE, JR.
San Francisco, Calif.

Published at the Publication Office, Hanover, New Hampshire. Second-class postage paid at Hanover, New Hampshire.

Copyright © 1969, The American Heart Association, Inc., 44 East Twenty-third Street, New York, N. Y. 10010

SUPPLEMENTS

to

CIRCULATION

VOLUME XXXIX AND XL
January-December, 1969

No. 1 (May)

CARDIOVASCULAR SURGERY 1968

Foreword

C. Frederick Kittle I-1

Human Cardiac Transplantation

Denton A. Cooley, Robert D. Bloodwell, Grady L. Hallman, Robert D. Leachman, James J. Nora, Donald G. Rochelle, and John D. Milam .. I-3

Functional Anatomy of the Transplanted Heart

Richard J. Cleveland, J. Michael Criley, Ronald J. Nelson, William Brody, Dominic DeCristofaro, and Barry J. Coughlin I-13

Epicardial ECG in Monitoring Cardiac Homograft Rejection

David H. Sewell, V. E. Kemp, and R. R. Lower I-21

Prolongation of Rat Heart Allograft Function with Heterologous Anti-lymphocyte Serum

K. Ono, Edward S. Lindsey, C. W. DeWitt, and J. H. Wallace I-27

Viable Aortic Valve Heterotransplantation

Hitoshi Mohri, Dennis D. Reichenbach, Robert W. Barnes, George E. Pierce, Ingegerd E. Hellström, and K. Alvin Merendino I-31

Aortic Homografts for Mitral Valve Replacement

William W. Angell, A. B. Iben, R. Gianelly, and N. W. Shumway .. I-39

Pathological Changes in Human Aortic Valve Homografts

Dennis D. Reichenbach, Hitoshi Mohri, and K. Alvin Merendino .. I-47

Further Evaluation of Aortic Valve Homografts Sterilized by Electron-Beam Energy

Frederick O. Bowman, Jr., James R. Malm, Paul D. Harris, Gerard A. Kaiser, and Anthony T. Kovalik I-57

Reconstructive Coronary Artery Surgery: Postoperative Assessment

William C. Sheldon, F. Mason Sones, Jr., Earl K. Shirey, David J. G. Fergusson, Rene G. Favaloro, and Donald B. Effler I-61

Acute Influence of Internal Mammary Artery Implantation on Ventricular Function

J. Judson McNamara and Harold C. Urschel, Jr. I-67

(Continued)

S-III

Left Ventricular Function After Formation of Myocardial Tunnels Used For Internal Mammary Artery Implantation	
Lee P. Enright, Hamner Hannah, III, and Robert L. Reis	I-71
Pressure in a Vascular Implant in the Myocardium During Systole	
Ronald J. Baird, Ralph T. Manktelow, and Prakash A. Shah	I-75
New Method to Delineate Myocardial Damage at Surgery	
Cerard A. Kaiser, Albert L. Waldo, Paul D. Harris, Frederick O. Bowman, Jr., Brian F. Hoffman, and James R. Malm	I-83
Surgical Intervention in Chronic Postinfarction Cardiac Failure	
Maureen A. Harman, William A. Baxley, William B. Jones, Harold T. Dodge, and Sterling Edwards	I-91
Chronic Left Ventricular Bypass with an Implantable Ventricular-Aortic Assist Pump	
William F. Bernhard, C. G. LaFarge, H. Jockin, S. Kitrilakis, and T. Robinson	I-99
Surgically Induced Atrioventricular Block as Treatment for Recurrent Atrial Tachycardia in Wolff-Parkinson-White Syndrome	
John H. Edmonds, Jr., Robert G. Ellison, and Thomas L. Crews	I-105
Hemodynamic Studies in Patients with 2M and 3M Starr-Edwards Prostheses: Evidence of Obstruction to Left Atrial Emptying	
D. Luke Glancy, Kevin P. O'Brien, Robert L. Reis, Stephen E. Epstein, and Andrew G. Morrow	I-113
Hemodynamic Evaluation of a Cloth-Covered Starr-Edwards Valve Prosthesis	
Frank E. Kloster, Rodney H. Herr, Albert Starr, and Herbert E. Griswold	I-118
Clinical and Hemodynamic Findings Following Replacement of the Mitral Valve with a Beall Valve Prosthesis (Dacron Velour-Covered Teflon-Disc Valve)	
Joseph W. Linhart, S. Serge Barold, Frank J. Hildner, Philip Samet, Juan C. Piccinini, James L. Marsten, and Jack J. Greenberg	I-127
Intravascular Hemolysis in Patients with Prosthetic Valves and Valvular Heart Disease	
John R. Walsh, Albert Starr, and Leonard W. Ritzmann	I-135
Abnormal Hemodynamic Function After Disc Mitral Valve Replacement	
John H. K. Vogel, Bruce C. Paton, Hugh R. Overy, and S. Gilbert Blount, Jr.	I-141
Effect of Dipyridamole on the Incidence of Arterial Emboli After Cardiac Valve Replacement	
Jay M. Sullivan, Dwight E. Harken, and Richard Gorlin	I-149
Hemolytic Anemia Following Prosthetic Valve Replacement	
Bradley M. Rodgers and David C. Sabiston, Jr.	I-155
Hemodynamic Effects of Glucagon in Patients Following Prosthetic Valve Replacement	
William W. Parmley, Jack M. Matloff, and Edmund H. Sonnenblick ..	I-163
Factors Influencing Risk in Cardiac Surgical Patients: Cooperative Study	
C. Frederick Kittle, William S. Dye, Frank Gerbode, William W. L. Glenn, Ormand C. Julian, Andrew G. Morrow, David C. Sabiston, Jr., and Milton Weinberg	I-169

(Continued)

Coarctation of the Aorta in Infants and Children: A Review of 333 Operative Cases, Including 179 Infants Roy L. Tawes, Jr., Eoin Aberdeen, D. J. Waterston, and R. E. Bonham Carter	I-173
Embolic Complications Following Repair of Atrial Septal Defects Anthony Hawe, G. C. Rastelli, Robert O. Brandenburg, and Dwight C. McGoon	I-185
Changes in Pulmonary Vascular Resistance Following Closure of Ventricular Septal Defects C. D. Park, H. Nicodemus, J. J. Downess, William W. Miller, and John A. Waldhausen	I-193
"Test Banding" of the Pulmonary Artery with a Balloon-Tipped Catheter: Technique for Evaluation of Pulmonary Reactivity in Children with Pulmonary Hypertension Secondary to Ventricular Septal Defects William J. Rashkind, John A. Waldhausen, William W. Miller, Paul Dodd, and Sidney Friedman	I-201
Double-Outlet Right Ventricle with Transposed Great Arteries and Subpulmonary Ventricular Septal Defect: The Taussig-Bing Malformation Billy M. Hightower, Alberto Barcia, Lionel M. Barger, Jr., and John W. Kirklin	I-207
Transposition of the Great Arteries with Ventricular Septal Defect: Palliation by Atrial Septostomy and Pulmonary Artery Banding John A. Waldhausen, I. Boruchow, William W. Miller, and William J. Rashkind	I-215
Subvalvar Pulmonary Obstruction Complicating the Postoperative Course of Balloon Atrial Septostomy in Transposition of the Great Arteries Michael J. Tynan, Ian Carr, Gerald Graham, and R. E. Bonham Carter	I-223
Direct Measurement of Instantaneous Coronary Blood Flow after Total Correction of Anomalous Left Coronary Artery Robert L. Reis, Lawrence Sorel Cohen, and Dean T. Mason	I-229
Magnesium Metabolism in Patients Undergoing Cardiopulmonary Bypass Melvin M. Scheinman, Robert W. Sullivan, and Kenneth H. Hyatt ..	I-235
Myocardial Potassium and Lactate Balance during Valve-Replacement Surgery Colin M. McCord, Richard S. Crampton, Michel G. Nasser, and Robert B. Case	I-243
Effect of a Nonionic Surface-Active Agent on Blood Viscosity and Platelet Adhesiveness Frederick L. Grover, Michael W. Heron, Melvin M. Newman, and Bruce C. Paton	I-249
Bacteremia and Thrombus on Prosthetic Heart Valves in Dogs Richard D. Jones, Motoichi Akao, and Frederick S. Gross	I-253
Pregnancy and Open-Heart Surgery Ralph S. Zitnik, R. O. Brandenburg, R. Sheldon and R. B. Wallace ..	I-257
Vena Cava Interruption for Thromboembolism: Partial or Complete? Influence of Cardiac Disease upon Results John Moran, Modestino G. Criscitiello, and Allan D. Callow	I-263
(Continued)	

Factors in the Mortality and Morbidity Associated with Surgical Treatment of Cerebrovascular Insufficiency

J. H. C. Ranson, A. M. Imparato, R. H. Clauss, G. E. Reed, and W. K. Hass I-269

No. 2 (July)

A CONTROLLED CLINICAL TRIAL OF A DIET HIGH IN UNSATURATED FAT

A Controlled Clinical Trial of a Diet High in Unsaturated Fat in Preventing Complications of Atherosclerosis

Seymour Dayton, Morton Lee Pearce, Sam Hashimoto, Wilfrid J. Dixon, and Uwamie Tomiyasu II-1

No. 3 (October)

**AMERICAN HEART ASSOCIATION ABSTRACTS
42nd SCIENTIFIC SESSIONS AND 23rd ANNUAL MEETING,
COUNCIL ON ARTERIOSCLEROSIS**

Council on Arteriosclerosis—American Society for the Study of Arteriosclerosis	III-1
Scientific Sessions of the American Heart Association	III-31
Author Index	III-225
Subject Index	III-237

No. 4 (November)

RESEARCH ON ACUTE MYOCARDIAL INFARCTION

Introduction Stuart Bondurant	IV-1
I. ETIOLOGY AND PATHOGENESIS OF ACUTE MYOCARDIAL INFARCTION Chairman: Thomas Killip, III	
What Is Myocardial Infarction? Jesse E. Edwards	IV-5
The Role of Small Vessel Disease in Myocardial Infarction Thomas N. James	IV-13
Platelet Function and Myocardial Infarction James Fraser Mustard and Marian Aitchison Packham	IV-20
Some Problems Concerning Coronary Artery Occlusion and Acute Myocardial Infarction Donald B. Hackel, E. Harvey Estes, Abe Walston, Stephen Koff, and Eugene Day	IV-31
Certain Chemorheologic Considerations Regarding the Blood Vascular Interface with Particular Reference to Coronary Artery Disease Donald L. Fry	IV-38
Effects of Acidosis on the Performance and Metabolism of the Anoxic Heart Theodore R. Gelet, Ruth A. Altschuld, and Arnold M. Weissler	IV-60

(Continued)

Psychosocial Forces in Myocardial Infarction and Sudden Death Stewart Wolf	IV-74
II. CRITICAL APPRAISAL OF WHAT HAS BEEN LEARNED ABOUT MYOCARDIAL INFARCTION FROM STUDIES ON PREVENTION AND CORRELATIONS	
Chairman: James V. Warren	
What We Have Learned about Myocardial Infarction from Epidemiologic and Dietary Studies Eugene A. Stead, Jr.	IV-85
The Design and Conduct of Clinical Trials in Myocardial Infarction Donald D. Reid	IV-91
The Role of Lipids in Acute Myocardial Infarction Donald S. Fredrickson	IV-99
Some Lessons Learned from Past Studies on the Use of Anticoagulants in Acute Myocardial Infarction Elliot Rapaport	IV-112
Lessons about Myocardial Infarction from Studies of Long-Term Anti-coagulation Richard R. H. Lovell	IV-119
Relation of Exercise to Acute Myocardial Infarction: Therapeutic, Restorative, Preventive, and Etiological Aspects Herman K. Hellerstein	IV-124
Hereditary Aspects of Myocardial Infarction Colin M. Bloor	IV-130
Smoking and Myocardial Infarction Joseph T. Doyle	IV-136
III. POTENTIAL IMPROVEMENTS IN MEANS OF EVALUATION OF ACUTE MYOCARDIAL INFARCTION	
Chairmen: Charles K. Friedberg and W. Proctor Harvey	
Studies on Effective Capillary Blood Flow of the Human and Canine Heart after Acute Myocardial Infarction Nora Goldschlager, Kurt Ravens, Georg Leb, Charles Cowan, and Richard J. Bing	IV-145
Evaluation of Myocardial Metabolism in Ischemic Heart Disease Richard Gorlin	IV-155
Function of Infarcting Myocardium Robert F. Rushmer	IV-168
Some Pertinent Physical Findings in the Clinical Evaluation of Acute Myocardial Infarction W. Proctor Harvey	IV-175
Sudden Death and Myocardial Infarction Mary Fulton, Desmond G. Julian, and Michael F. Oliver	IV-182
IV. RESEARCH ON THE TREATMENT OF ACUTE MYOCARDIAL INFARCTION	
Chairman: Richard Gorlin	

(Continued)

Metabolic Interventions in the Treatment of Infarcting Myocardium	
Robert E. Olson	IV-195
Maintenance of Cell Viability	
Norman Brachfeld	IV-202
Effects of Drugs and of Counterpulsation on Myocardial Oxygen Consumption: Observations on the Ischemic Heart	
Eugene Braunwald, James W. Covell, Peter R. Maroko, and John Ross, Jr.	IV-220
The Potential of Thrombolysis in the Treatment of Thrombotic Coronary Occlusion	
John R. Hampton	IV-231
Factors Influencing Coronary Resistance in the Ischemic Heart	
Robert M. Berne, and Rafael Rubio	IV-240
General Treatment of Acute Myocardial Infarction	
Charles K. Friedberg	IV-252
Pathogenesis, Prevention, and Treatment of Arrhythmias in Myocardial Infarction	
Bernard Lown, Bernard D. Kosowsky, and Michael D. Klein	IV-261
V. TREATMENT OF ACUTE MYOCARDIAL INFARCTION	
Chairman: Eugene Braunwald	
The Potential of Anticoagulant Treatment in Acute Myocardial Infarction	
Richard V. Ebert	IV-271
Current Status of Treatment of Power Failure of the Heart in Acute Myocardial Infarction with Drugs and Blood Volume Replacement	
H. J. C. Swan, Ronald Danzig, Yosvi Sukumalchantra, and Howard Allen	IV-277
Treatment of Power Failure by Means of Mechanical Assistance	
Harry S. Soroff, William C. Birtwell, Fabio Giron, Ulises Ruiz, A. Nishimura, Moshe Many, M. El-Zawahry, and Ralph A. Deterling, Jr.	IV-292
Surgical Management of Myocardial Infarction: Some Promising Concepts Utilizing Revascularization, Mechanical Circulatory Assistance, Operative Treatment of Severe Complications, and Cardiac Replacement	
C. Walter Lillehei, A. J. Lande, W. R. Rassman, S. Tanaka, and J. H. Bloch	IV-315

SUPPLEMENTS TO CIRCULATION

VOLUME XXXIX AND XL

JANUARY-DECEMBER, 1969

AUTHOR INDEX

Aberdeen, E., I-173
Akao, M., I-253
Allen, H., IV-277
Altschuld, R. A., IV-60
Angell, W. W., I-39

Baird, R. J., I-75
Barcia, A., I-207
Barger, L. M., Jr., I-207
Barnes, R. W., I-31
Barold, S. S., I-127
Baxley, W. A., I-91
Berne, R. M., IV-240
Bernhard, W. F., I-99
Bing, R. J., IV-145
Birtwell, W. C., IV-292
Bloch, J. H., IV-315
Bloodwell, R. D., I-3
Bloor, C. M., IV-130
Blount, S. G., Jr., I-141
Bondurant, S., IV-1
Boruchow, I., I-215
Bowman, F. O., Jr., I-57, I-83
Brachfeld, N., IV-202
Brandenburg, R. O., I-185, I-257
Braunwald, E., IV-220
Brody, W., I-13

Callow, A. D., I-263
Carr, I., I-223
Carter, R. E. B., I-173
Case, R. B., I-243
Claus, R. H., I-269
Cleveland, R. J., I-13
Cohen, L. S., I-229
Coughlin, B. J., I-13
Cooley, D. A., I-3
Covell, J. W., IV-220
Cowan, C., IV-145
Crampton, R. S., I-243
Crews, T. L., I-105
Criley, J. M., I-13
Crisciello, M. G., I-263
Cross, F. S., I-253

Dayton, S., II-1
Danzig, R., IV-277
Day, E., IV-31
DeCristofaro, D., I-13
Deterling, R. A., Jr., IV-292
DeWitt, C. W., I-27

Dixon, W. J., II-1
Dodd, P., I-201
Dodge, H. T., I-91
Downes, J. J., I-193
Doyle, J. T., IV-136
Dye, W. S., I-169

Ebert, R. V., IV-271
Edmonds, J. H., Jr., I-105
Edwards, J. E., IV-5
Edwards, S., I-91
Effler, D. B., I-61
Ellison, R. G., I-105
El-Zawahry, M., IV-292
Enright, L. P., I-71
Epstein, S. E., I-113
Estes, E. H., IV-31

Favaloro, R. G., I-61
Fergusson, D. J. G., I-61
Fredrickson, D. S., IV-99
Friedberg, C. K., IV-252
Friedman, S., I-201
Fry, D. L., IV-38
Fulton, M., IV-182

Gelet, T. R., IV-60
Gerbode, F., I-169
Gianelly, R., I-39
Giron, F., IV-292
Glancy, D. L., I-113
Glenn, W. W. L., I-169
Goldschlager, N., IV-145
Gorlin, R., I-149, IV-155
Graham, G., I-223
Greenberg, J. J., I-127
Griswold, H. E., I-119
Grover, F. L., I-249

Hackel, D. B., IV-31
Hallman, G. L., I-3
Hampton, J. R., IV-231
Hannah, H., III, I-71
Harken, D. E., I-149
Harman, M. A., I-91
Harris, P. D., I-57, I-83
Harvey, W. P., IV-175
Hashimoto, S., II-1
Hass, W. K., I-269
Hawe, A., I-185
Hellerstein, H. K., IV-124
Hellström, I. E., I-31

Heron, M. W., I-249
Herr, R. H., I-119
Hightower, B. M., I-207
Hildner, F. J., I-127
Hoffman, B. F., I-83
Hyatt, K. H., I-235

Iben, A. B., I-39
Imparato, A. M., I-269

James, T. N., IV-13
Jockin, H., I-99
Jones, R. D., I-253
Jones, W. B., I-91
Julian, D. G., IV-182
Julian, O. C., I-169

Kaiser, G. A., I-57, I-83
Kemp, V. E., I-21
Kirklin, J. W., I-207
Kitrilakis, S., I-99
Kittle, C. F., I-1, I-169
Klein, M. D., IV-261
Kloster, F. E., I-119
Koff, S., IV-31
Kosowsky, B. D., IV-261
Kovalik, A. T., I-57

LaFarge, C. G., I-99
Lande, A. J., IV-315
Leachman, R. D., I-3
Leb, G., IV-145
Lillehei, C. W., IV-315
Lindsey, E. S., I-27
Linhart, J. W., I-127
Lovell, R. R. H., IV-119
Lower, R. R., I-21
Lown, B., IV-261

Malm, J. R., I-57, I-83
Manktelow, R. T., I-75
Many, M., IV-292
Maroko, P. R., IV-220
Marsten, J. L., I-127
Mason, D. T., I-229
Matloff, J. M., I-63
Merendino, K. A., I-31, I-47
Milam, J. D., I-3
Miller, W. W., I-193, I-201, I-215
Mohri, H., I-31, I-47
Moran, J. M., I-263

S-X

INDEX TO AUTHORS

Morrow, A. G., I-113, I-169
Mustard, J. F., IV-20
McCord, C. W., I-243
McGoon, D. C., I-185
McNamara, J. J., I-67

Nasser, M. G., I-243
Nelson, R. J., I-13
Newman, M. M., I-249
Nicodemus, H., I-193
Nishimura, A., IV-292
Nora, J. J., I-3

O'Brien, K. P., I-113
Oliver, M. F., IV-182
Olson, R. E., IV-195
Ono, K., I-27
Overy, H. R., I-141

Packham, M. A., IV-20
Park, C. D., I-193
Parmley, W. W., I-163
Paton, B. C., I-141, I-249
Pearce, M. L., II-1
Piccinini, J. C., I-127
Pierce, G. E., I-31

Ranson, J. H. C., I-269
Rapaport, E., IV-112

Rashkind, W. J., I-201, I-215
Rassman, W. R., IV-315
Rastelli, C. C., I-185
Ravens, K., IV-145
Reed, G. E., I-269
Reichenbach, D. D., I-31, I-47
Reid, D. D., IV-91
Reis, R. L., I-71, I-113, I-229
Ritzmann, L. W., I-135
Robinson, T., I-99
Rochelle, D. C., I-3
Rodgers, B. M., I-155
Ross, J., Jr., IV-220
Rubio, R., IV-240
Ruiz, U., IV-292
Rushmer, R. F., IV-168

Sabiston, D. C., Jr., I-155, I-169
Samet, P., I-127
Scheinman, M. M., I-235
Sewell, D. H., I-21
Shah, P. A., I-75
Sheldon, R., I-257
Sheldon, W. C., I-61
Shirey, E. K., I-61
Shumway, N. E., I-39
Soroff, H. S., IV-292
Sones, F. M., Jr., I-61
Sonnenblick, E., I-163

Starr, A., I-119, I-135
Stead, E. A., Jr., IV-85
Sukumalchantra, Y., IV-277
Sullivan, J. M., I-149
Sullivan, R. W., I-235
Swan, H. J. C., IV-277

Tanaka, S., IV-315
Tawes, R. L., Jr., I-173
Tomiyasu, U., II-1
Tynan, M., I-223

Urschel, H. C., Jr., I-67

Vogel, J. H. K., I-141

Waldhausen, J. A., I-193, I-201,
I-215
Waldo, A. L., I-83
Wallace, J. H., I-27
Wallace, R. B., I-257
Walsh, J. R., I-135
Walston, A., IV-31
Waterston, D. J., I-173
Weissler, A. M., IV-60
Weinberg, M., I-169
Wolf, S., IV-74

Zitnik, R. S., I-257

SUPPLEMENTS to CIRCULATION

VOLUMES XXXIX AND XL

January-December 1969

*Index to ABSTRACTS, AHH 42nd Scientific Sessions, Supplement III,
October 1969 is included in that issue.*

SUBJECT INDEX

A

- Acidosis**
 - effects on performance and metabolism on the anoxic heart, IV-60
- Adenosine**
 - factors influencing coronary resistance in ischemic heart, IV-240
- I-131 Albumin**
 - effective capillary blood flow of human and canine heart after acute myocardial infarction, IV-145
- Allografts**
 - prolongation of rat heart allograft function with heterologous antilymphocyte serum, I-27
- Alpha-blocking agents**
 - treatment of power failure in acute myocardial infarction, IV-277
- Anastomoses**
 - pressure in vascular implant in myocardium during systole, I-75
- Anemia**
 - hemolytic following prosthetic valve replacement, I-155
 - intravascular hemolysis in patients with prosthetic valves and valvular heart disease, I-135
- Aneurysms**
 - left ventricular, IV-315
 - surgery
 - intervention in chronic postinfarction cardiac failure, I-91
 - ventricular, myocardial infarction, IV-175
- Angina pectoris**
 - myocardial infarction and, IV-5
- Angiocardigraphy**
 - double-outlet right ventricle with transposed great arteries and subpulmonary ventricular septal defect: Taussig-Bing malformation, I-207
- Angiotensin**
 - treatment of power failure in acute myocardial infarction, IV-277
- Animals**
 - dogs
 - bacteremia and thrombus in prosthetic heart valves in dogs, I-253
 - effective capillary blood flow of human and canine heart after acute myocardial infarction, IV-145
 - functional anatomy of transplanted heart, I-13
 - left ventricular function after formation of myocardial tunnels used for internal mammary artery implantation, I-71
 - new method to delineate myocardial damage at surgery, I-83
 - pressure in vascular implant in myocardium during systole, I-75
 - rats
 - effects of acidosis on performance and metabolism of anoxic heart, IV-60
 - prolongation of rat heart allograft function with heterologous antilymphocyte serum, I-27

- Anoxia**
 - effects of acidosis on performance and metabolism of anoxic heart, IV-60
- Anticoagulant therapy**
 - for acute myocardial infarction, IV-112, IV-252
 - death attributed to hemorrhage, IV-271
 - long-term studies, IV-119
 - International Collaborative Analysis, IV-119
- Antilymphocyte globulin (ALG)**
 - prolongation of rat heart allograft function with heterologous antilymphocyte serum, I-27
- Aorta**
 - aortic homografts for mitral valve replacement, I-39
 - coarctation of
 - in infants and children, I-173
- Aortic valves**
 - homografts
 - for mitral valve replacements, I-39
 - pathological changes in human, I-47
 - sterilized by electron-beam energy, I-57
 - viable heterotransplantation, I-31
- Arrhythmias**
 - in myocardial infarction, IV-252, IV-261
 - precoronary care, IV-262
 - premonitory symptoms and signs, IV-262
 - ventricular premature beats and sudden death, IV-262
 - psychosocial forces in myocardial infarction and sudden death, IV-74
 - use of anticoagulants in acute myocardial infarction, IV-112
 - ventricular, diagnosis of myocardial infarction, IV-175
- Arteriosclerosis**
 - chemorheologic considerations regarding blood vascular interface with particular reference to coronary artery disease, IV-38
 - effects of physical activity on myocardial infarction, IV-124
- Arvin**
 - lysis of fibrin, IV-231
- Assistance devices, mechanical**
 - for power failure in acute myocardial infarction, IV-292
 - See also* Devices, mechanical assistance
- Assisted circulation.** *See* Circulation, assisted
- Atherosclerosis**
 - clinical trials of diet high in unsaturated fat, II-1
 - See also* Diet high in unsaturated fat
 - platelet function and myocardial infarction, IV-20
 - reconstructive coronary artery surgery; postoperative assessment, I-61
 - smoking and myocardial infarction, IV-136
- Atrial gallops**
 - acute myocardial infarction, IV-175
- Atrial septal defects**
 - embolic complications following repair of, I-185
- Atrial septostomy**
 - transposition of great arteries
 - subvalvar pulmonary obstruction complicating postoperative course of, I-223
 - with ventricular septal defect, I-215

- Atrioventricular block**
 as treatment for recurrent atrial tachycardia in
 Wolff-Parkinson-White syndrome, I-105
- Auscultation**
 atrial and ventricular diastolic gallop rhythms, IV-
 175

B

- Bacteremia**
 and thrombus in prosthetic heart valves in dogs, I-
 253
- Balloons**
 counterpulsation with intra-aortic balloon, IV-292
- Beall valves** (dacron velour-covered Teflon disc)
 clinical and hemodynamic studies, I-127
- Bed rest**
 for acute myocardial infarction, IV-252
- Biochemical therapy**
 of myocardial ischemia and infarction, IV-195
- Bishydroxycoumarin** (dicumarol)
 use of anticoagulants in acute myocardial infarction,
 IV-112
- Blood flow**
 coronary
 direct measurement of instantaneous, after total
 correction of anomalous left coronary artery,
 I-229
 effect of exercise on, IV-124
 factors influencing coronary resistance in the
 ischemic heart, IV-240
 effect of nonionic surface-active agent on blood
 viscosity and platelet adhesiveness, I-249
 effective capillary blood flow, human and canine
 heart after acute myocardial infarction, IV-
 145
- Blood pressure**
 in vascular implant in myocardium during systole,
 I-75
- Blood volume**
 maintenance of adequate filling pressure and
 effective circulating, IV-277
 treatment of power failure of heart in acute
 myocardial infarction with replacement of,
 IV-277
- Bradycardia**
 acute myocardial infarction, IV-175
- Brain**
 psychosocial forces in myocardial infarction and
 sudden death, IV-74
- Bypass**
 cardiopulmonary. *See* Cardiopulmonary bypass
 chronic left ventricular bypass with implantable
 ventricular-aortic assist pump, I-99
 venoarterial, IV-292
 membrane pump-oxygenator with, IV-315
 without an oxygenator, IV-294
 veno-pulmonary artery, IV-292

C

- Cardiopulmonary bypass**
 effect of nonionic surface-active agent on blood
 viscosity and platelet adhesiveness, I-249
 magnesium metabolism in, I-235
- Cerebrovascular insufficiency**
 factors in mortality and morbidity associated with
 surgical treatment, I-269
- Children and infants**
 coarctation of aorta, I-173
 double-outlet right ventricle with transposed great
 arteries and subpulmonary ventricular septal
 defect: Taussig-Bing malformation, I-207

- "test banding" with balloon-tipped catheter: for
 evaluation of pulmonary arteriolar reactivity
 with pulmonary hypertension, I-201
- total correction of anomalous left coronary artery
 direct measurement of instantaneous coronary
 blood flow, I-229
- transposition of great arteries
 subvalvar pulmonary obstruction complicating
 postoperative course of balloon atrial septos-
 tomy, I-223
 with ventricular septal defect, I-215
- Cholesterol**
 diet high in unsaturated fat, II-13
 changes after termination of, II-46
 lipid changes after myocardial infarction, IV-103
- Cigarette smoking**
 myocardial infarction and, IV-136
 psychosocial forces in myocardial infarction and
 sudden death, IV-74
- Cineangiography**
 transplanted heart
 functional anatomy of, I-13
- Circulation**
 assist devices, IV-292
 chronic left ventricular bypass with implantable
 ventricular-aortic assist pump, I-99
 surgical procedures, IV-315
 blood volume replacement
 treatment of power failure in acute myocardial
 infarction with drugs and, IV-277
 coronary
 effective capillary blood flow of human and
 canine heart after acute myocardial infarc-
 tion, IV-145
 use of anticoagulants in acute myocardial
 infarction, IV-112
 effect of nonionic surface-active agent on blood
 viscosity and platelet adhesiveness, I-249
 extracorporeal circulatory systems
 for treatment of power failure in acute myocar-
 dial infarction, IV-292
 pulmonary
 changes in pulmonary vascular resistance follow-
 ing closure of ventricular septal defects, I-
 193
- Clinical trials of diet high in unsaturated fat, II-1**
See also Diet in unsaturated fat
- Clotting**
 effect of exercise on acute myocardial infarction,
 IV-124
 thrombolytic therapy in myocardial infarction, IV-
 231
- Coarctation of aorta**
 in children and infants, I-173
- Congenital anomalies**
 anomalous left coronary artery, I-229
 transposition of great arteries, with ventricular
 septal defect, I-215
- Congestive heart disease**
 surgical intervention in chronic postinfarction car-
 diac failure, I-91
- Contractility**
 myocardial, pharmacological support or enhance-
 ment of, IV-277
- Coronary arteries**
 disease
 chemorheologic considerations regarding the
 blood vascular interface with particular
 reference to, IV-38
 disease
 controlled dietary studies, IV-85
 hereditary aspects, IV-130
 pathogenesis, IV-130

- effect of exercise on acute myocardial infarction, IV-124
- occlusions
 - and acute myocardial infarction, IV-31
 - factors influencing coronary resistance in the ischemic heart, IV-240
- surgical reconstruction
 - postoperative assessment, I-61
- total correction of anomalous left coronary artery
 - direct measurement of instantaneous coronary blood flow after, I-229
- Coronary care units**
 - arrhythmias in myocardial infarction, IV-261
 - impact on coronary mortality, IV-262
 - precoronary care, IV-262
- Coronary sinus**
 - evaluation of myocardial metabolism in ischemic heart disease, IV-155
 - ligation, IV-315
- Coumarin drugs**
 - use of anticoagulants in acute myocardial infarction, IV-112
- Counterpulsation**
 - effect of drugs and, on myocardial oxygen consumption, IV-220
 - with an intra-aortic balloon, IV-292
 - surgery for myocardial infarction, IV-315
 - and synchronous venoarterial bypass, IV-292

D

- Death**
 - sudden death
 - in myocardial infarction, IV-74, IV-182
 - See also Sudden death
- Devices, mechanical**
 - chronic left ventricular bypass with implantable ventricular-aortic assist pump, I-99
 - counterpulsation and shock, IV-292
 - counterpulsation and synchronous venoarterial bypass, IV-292
 - counterpulsation with an intra-aortic balloon, IV-292
 - external assist, IV-292
 - external synchronous assist, IV-292
 - extracorporeal circulatory systems, IV-292
 - flow or shunt types, IV-292
 - implantable devices, IV-292
 - clinical applications, IV-292
 - in-series auxiliary left ventricle, IV-292
 - in-series subcutaneously exteriorized prosthetic left ventricle, IV-292
 - left ventricular assist by synchronous regional pressure variation, IV-292
 - partial venoarterial bypass without an oxygenator, IV-292
 - synchronous pressure assist, IV-292
 - clinical applications, IV-292
 - treatment of power failure of heart, IV-292
 - venoarterial bypass, IV-292
 - veno-pulmonary artery bypass, IV-292
- Diabetes**
 - psychosocial forces in myocardial infarction and sudden death, IV-74
- Diagnosis**
 - myocardial infarction, IV-175
- Diet high in unsaturated fat, II-1**
 - for acute myocardial infarction, IV-252
 - adipose tissue analyses, II-5
 - composition of, II-23
 - analysis of diet, II-4
- anginal syndrome, II-8
- applicability to population at large, II-56
- arteries and atheromata
 - analysis of, II-8, II-41
 - gross grading of arteries, II-38
 - reversibility of atheroma, II-57
- autopsies, II-7
- background of study, II-1
- cerebral vascular status, II-9
- changes in serum cholesterol and serum total lipids, II-19
- choice of diet and mode of food service, II-3
- cigarette smoking habits, II-12
- clinical end points, II-6
- composition of diets, II-14
- criteria for grading of cardiac decompensation, II-3
- design of clinical trials, II-58
- ECG criteria for diagnosis of myocardial infarction, II-7
- events and deaths, II-25
 - surveillance for, II-5
- fatty acids in serum lipids, II-21
- hypertension, II-8
- ideal atherosclerosis-preventing diet, II-57
- length of study, II-1
- methods of study, II-2
- myocardial infarction, II-9, IV-85
- other dietary trials, II-46
 - primary prevention, II-46
 - secondary prevention, II-48
- peripheral atherosclerosis, II-11
- preventability of sudden death, II-58
- preventing complications of atherosclerosis, II-1
- results, II-8
- serum analyses, II-5
- serum cholesterol and serum total lipid levels, II-13
 - changes after termination of trial, II-46
 - significance of trial, II-55
- statistical procedures, II-8
- subjects, II-1
 - clinical characteristics, II-8
 - recruiting, II-2
 - withdrawals, discharges and nonadherence, II-15
- substitution of unsaturated fat for saturated fat, II-1
- termination of trial, II-8
- Digitalis**
 - for acute myocardial infarction, IV-252
 - treatment of power failure of heart in acute myocardial infarction, IV-277
- Dipyridamole**
 - effect on arterial emboli after cardiac valve replacement, I-149
- Disc valves**
 - abnormal hemodynamic function after disc mitral valve replacement, I-141
- Dopamine**
 - treatment of power failure of heart in acute myocardial infarction, IV-277
- Drugs**
 - affecting peripheral blood vessels, IV-277
 - alpha-blocking agents, IV-277
 - effect of counterpulsation and, on myocardial oxygen consumption, IV-220
 - peripheral vasoconstrictors (alpha agents), IV-277
 - treatment of power failure of heart in acute myocardial infarction, IV-277
 - alpha-blocking agents, IV-277
 - beta-blocking agents, IV-277

E

- Edinburgh Community Study of Acute Coronary Disease, IV-182
- Effective capillary blood flow
 - human and canine heart after acute myocardial infarction, IV-145
- Electrocardiography
 - in monitoring cardiac homograft rejection, I-21
- Electrograms
 - new method to delineate myocardial damage at surgery, I-83
- Electrolyte disturbances
 - treatment of power failure of heart in acute myocardial infarction with drugs and blood volume replacement, IV-277
- Electron microscopy
 - pathological changes in aortic valve homografts, I-47
- Embolism
 - complications following repair of atrial septal defects, I-185
 - effects of dipyridamole on incidence of, after cardiac valve replacement, I-149
 - pulmonary, vena cava interruption for thromboembolism, I-263
- Endocardial cushion defects
 - changes in pulmonary vascular resistance following closure of ventricular septal defects, I-193
- Epidemiologic studies
 - myocardial infarction, IV-85
- Erythropoiesis
 - intravascular hemolysis in patients with prosthetic valves and valvular heart disease, I-135
- Exercise
 - effect on acute myocardial infarction, IV-124
 - preventive value of physical reconditioning, IV-127
 - therapeutic and restorative role, IV-126
 - psychosocial forces in myocardial infarction and sudden death, IV-74
- Extracorporeal circulatory systems
 - for treatment of power failure, IV-292

F

- Familial studies
 - coronary anatomy, IV-130
- Fatty acids, free
 - role of lipids in myocardial infarction, IV-101, IV-103
- Fibrillation
 - ventricular, arrhythmias in acute myocardial infarction, IV-262
- Fibrin
 - fibrinolytic mechanism, IV-231
 - lysis of, IV-231
 - potential of thrombolysis in treatment of thrombotic coronary occlusion, IV-231
- Fibrinolytic agents, IV-231
- Force-velocity relationship
 - function of infarcting myocardium, IV-168
- Free fatty acids
 - role of lipids in myocardial infarction, IV-101, IV-103

G

- Gallop rhythms
 - acute myocardial infarction, IV-175
 - atrial gallops, IV-175
 - diagnosis of myocardial infarction, IV-175
 - ventricular diastolic gallops, IV-175

- Genetic control
 - hereditary aspects of myocardial infarction, IV-130
- Globulin
 - heterologous antilymphocyte serum, prolongation of rat heart allograft function with, I-27
- Glucagon
 - hemodynamic effects following prosthetic valve replacement, I-163
 - treatment of power failure of heart in acute myocardial infarction, IV-277
- Glycerides
 - rise after myocardial infarction, IV-106
- Grafts
 - heterografts
 - viable aortic valves, I-31
 - homografts
 - aortic homografts for mitral valve replacement, I-39
 - aortic valves sterilized by electron-beam energy, I-57
 - pathological changes in human aortic valve homografts, I-47

H

- Heart beats
 - irregularities in arrhythmias in myocardial infarction, IV-261
- Heart failure
 - surgical intervention in chronic postinfarction cardiac failure, I-91
- Hemodynamic studies
 - effect of exercise on acute myocardial infarction, IV-124
 - glucagon following prosthetic valve replacement, I-163
 - prostheses
 - Beall valves, I-127
 - discoid mitral prostheses, I-141
 - Starr-Edwards valve prostheses
 - cloth covered, I-119
 - study of patients with 2M and 3M prostheses, I-113
- Hemolysis
 - hemolytic anemia following prosthetic valve replacement, I-155
 - intravascular, with prosthetic valves and valvular heart disease, I-135
- Heparin
 - use of anticoagulants in acute myocardial infarction, IV-112
- Hereditary aspects
 - of myocardial infarction, IV-130
- Heterografts
 - viable aortic valves, I-31
- Heterologous antilymphocyte serum
 - prolongation of rat heart allograft function with, I-27
- Histochemistry
 - of myocardial ischemia, IV-202
- Histology
 - of myocardial ischemia, IV-202
- Homeostasis
 - maintenance of cell viability, IV-202
- Homografts
 - aortic valve
 - for mitral valve replacement, I-39
 - pathological changes in, I-47
 - sterilized by electron-beam energy, I-57
 - epicardial ECG in monitoring cardiac homograft rejection, I-21

Hospitals

coronary care units, IV-262

See also Coronary care units**Hyperbaric oxygenation**

for acute myocardial infarction, IV-252

Hypercholesteremia

hereditary aspects of myocardial infarction, IV-130

Hyperglyceridemia

after myocardial infarction, IV-106

Hyperlipoproteinemia

role of lipids in myocardial infarction, IV-99

Hypertension

hereditary aspects of myocardial infarction, IV-130

psychosocial forces in myocardial infarction and sudden death, IV-74

pulmonary

changes in pulmonary vascular resistance following closure of ventricular septal defects, I-193

"test banding" with balloon-tipped catheter: for evaluation of pulmonary arteriolar reactivity with pulmonary hypertension, I-201

transposition of great arteries with ventricular septal defects, I-215

Hypovolemia

treatment of power failure of heart in acute myocardial infarction with drugs and blood volume replacement, IV-277

Hypoxia

metabolic interventions in treatment of infarcting myocardium, IV-195

I**Immunosuppressive therapy**

cardiac transplantation, I-3

prolongation of rat heart allograft function with heterologous antilymphocyte serum, I-27

viable aortic valve heterotransplantation, I-31

Implantable devices, IV-292

clinical application, IV-292

for power failure in acute myocardial infarction, IV-292

Implantation

mammary artery

acute influence of, on ventricular function, I-67

pressure in vascular implant in myocardium during systole, I-75

Infants. *See* Children and infants**Infarctectomy**

for acute myocardial infarction, IV-315

Ischemia

myocardial

effects on myocardial lipid metabolism, IV-202

histology and histochemistry of, IV-202

pathophysiology of, IV-195

Ischemic heart disease

clinical trials, IV-91

evaluation of myocardial metabolism, IV-155

Isoproterenol

for power failure of heart in acute myocardial infarction, IV-277

L**Lactate**

effects of acidosis on performance and metabolism of anoxic heart, IV-60

myocardial potassium and lactate balance during valve-replacement surgery, I-243

Lactate-pyruvate production

evaluation of myocardial metabolism in ischemic heart disease, IV-155

Left ventricle

akinesia or dyskinesia, IV-315

assist by synchronous regional pressure variation, IV-292

surgery

intervention in chronic postinfarction cardiac failure, I-91

repair of rupture of free wall of left ventricle, IV-315

Lesions

coronary artery, effect of exercise on, IV-124

Light microscopy

pathological changes in aortic valve homografts, I-47

Lipids and lipoproteins

effect of exercise on acute myocardial infarction, IV-124

effect of ischemia on myocardial lipid metabolism, IV-202

in myocardial infarction, IV-99

changes after infarction, IV-101

decreased beta lipoproteins, IV-104

effects of lipid changes, IV-107

free fatty acids, IV-101, IV-103

late rise in glycerides, IV-106

mechanisms, IV-103

pre-infarction lipid patterns, IV-99

Lysis

of fibrin, IV-231

M**Magnesium**

metabolism in cardiopulmonary bypass, I-235

Mammary artery

internal implantation

acute influence on ventricular function, I-67

left ventricular function after formation of myocardial tunnels used for, I-71

pressure in vascular implant in myocardium during systole, I-75

prophylactic role in acute myocardial infarction, IV-315

Measurements

instantaneous coronary blood flow

after total correction of anomalous left coronary artery, I-229

Mechanical assistance

for treating power failure of heart, IV-292

Meperidine

for acute myocardial infarction, IV-252

Metabolism

effect of acidosis on performance and metabolism of anoxic heart, IV-60

effect of exercise on acute myocardial infarction, IV-124

evaluation in ischemic heart disease, IV-155

interventions in treatment of infarcting myocardium, IV-195

Metaraminol

treatment of power failure in acute myocardial infarction, IV-277

Mitral regurgitation

for myocardial infarction, IV-315

valve replacement, surgical intervention in chronic post-infarction cardiac failure, I-91

Mitral valves

aortic homografts for mitral valve replacement, I-39

replacement

- abnormal hemodynamic function after disc mitral valve replacement, I-141
- Beall valve prostheses, I-127
- Morphine**
 - for treatment of myocardial infarction, IV-252
- Mortality**
 - impact of coronary care units on coronary mortality, IV-262
 - use of anticoagulants in acute myocardial infarction, IV-112
- Myocardial infarction**
 - acute
 - clinical evaluation, IV-175
 - coronary artery occlusion and, IV-31
 - gallop rhythm, IV-175
 - pathological manifestations, IV-7
 - physical findings in clinical evaluation, IV-175
 - value of anticoagulant therapy, IV-112
 - anatomical distribution of small coronary arteries, IV-13
 - AV node artery, IV-15
 - sinus node artery, IV-14
 - angina pectoris and, IV-5
 - anticoagulant therapy, IV-112
 - International Collaborative Analysis, IV-119
 - long-term studies, IV-119
 - arrhythmias, IV-261
 - pathogenesis of, IV-261
 - cigarette smoking and, IV-136
 - clinical characteristics, IV-13
 - clinical trials, IV-175
 - assessment of therapeutic effect, IV-91
 - design and conduct of, IV-91
 - historical controls, IV-91
 - methods of assessing therapeutic effects, IV-91
 - monitoring of results, IV-91
 - need for controlled trials, IV-91
 - number required, IV-91
 - patient allocation to treated and comparative groups, IV-91
 - problems in large-scale trials, IV-91
 - source of variation in fatality rate, IV-91
 - stratification and random allocation, IV-91
 - timing and changes in treatment, IV-91
 - use of prognostic index, IV-91
 - diagnosis, IV-175
 - bradycardia, IV-175
 - gallop rhythm, IV-175
 - papillary muscle dysfunction, IV-175
 - perforation of ventricular septum, IV-175
 - pericardial friction rub, IV-175
 - rupture of papillary muscle, IV-175
 - ventricular aneurysm, IV-175
 - ventricular arrhythmias, IV-175
 - ventricular tachycardia, IV-175
 - effective capillary blood flow of human and canine heart after acute myocardial infarction, IV-145
 - epidemiologic and dietary studies, IV-85
 - etiology and pathogenesis of, II-5
 - chemorheologic considerations regarding blood vascular interface with particular reference to coronary artery disease, IV-38
 - coronary artery occlusion and, IV-31
 - definition of myocardial infarction, IV-5
 - effects of acidosis on anoxic heart, IV-60
 - platelet function, IV-20
 - psychosocial forces and sudden death, IV-74
 - role of small vessel disease, IV-13
 - evaluation of ventricular performance, IV-168
 - function of infarcting myocardium, IV-168
 - hereditary aspects, IV-130
 - lipids and lipoproteins, IV-99
 - changes after infarction, IV-101
 - decreased beta-lipoproteins, IV-104
 - effects of lipid changes, IV-107
 - late rise in glycerides, IV-106
 - pre-infarction lipid patterns, IV-99
 - role in myocardial infarction, IV-99
 - myocardial tension development, IV-220
 - occlusion of small coronary arteries, IV-15, IV-31
 - platelet function, IV-20
 - precoronary care, IV-262
 - psychosocial forces and sudden death, IV-74
 - relation of exercise to, IV-124
 - risk factors, IV-74
 - role of small vessel disease, IV-13
 - sudden death and, IV-74, IV-182
 - in ambulatory patients, IV-262
 - Edinburgh Community Study of Acute Coronary Disease, IV-182
 - mechanism of, IV-261
 - preceding ill health and, IV-182
 - premonitory symptoms and signs, IV-264
 - ventricular premature beats and, IV-262
 - surgery, IV-315
 - acute circulatory assistance, IV-315
 - coronary sinus ligation, IV-315
 - counterpulsation, IV-315
 - infarctectomy, IV-315
 - intervention in chronic postinfarction cardiac failure, I-91
 - left ventricular akinesia or dyskinesia treated by resection, IV-315
 - left ventricular aneurysmectomy, IV-315
 - membrane pump-oxygenator with venous-arterial bypass, IV-315
 - mitral regurgitation, IV-315
 - new method to delineate myocardial damage at surgery, I-83
 - prophylactic role of internal mammary artery implantation, IV-315
 - rupture of free wall of left ventricle, IV-315
 - total cardiac replacement, IV-315
 - treatment
 - agents which affect peripheral blood vessels, IV-277
 - alpha-blocking agents, IV-277
 - anticoagulants, IV-112, IV-252, IV-271
 - bed rest, IV-252
 - biochemical therapy of myocardial ischemia, IV-195
 - diet, IV-252
 - digitalis, IV-252, IV-277
 - dopamine and glucagon, IV-277
 - effects of drugs and of counterpulsation on myocardial oxygen consumption, IV-220
 - effects of ischemia on myocardial lipid metabolism, IV-202
 - effects of morphine, IV-252
 - effects of myocardial tissue acidosis, IV-202
 - factors influencing coronary resistance in the ischemic heart, IV-240
 - function of myocardial acid hydrolases (lysosomes) in pathological ischemic autolysis, IV-202
 - general measures, IV-252
 - hospital versus home treatment, IV-252
 - hyperbaric oxygenation, IV-252
 - irreversible ischemic cell death, IV-202
 - isoproterenol, IV-277
 - maintenance of cell viability, IV-202
 - meperidine and pentazocine, IV-252
 - metabolic interventions, IV-195
 - norepinephrine, IV-277
 - oxygen therapy, IV-252
 - pharmacological support or enhancement of myocardial contractility, IV-277

- polarizing treatment, IV-252
- potential of thrombolysis in treatment of thrombotic coronary occlusion, IV-231
- of power failure by means of mechanical assistance, IV-292
- of power failure with drugs and blood volume replacement, IV-277
- relief of pain, IV-252
- sedation and sleep therapy, IV-252
- surgical management, IV-315

Myocardial ischemia, IV-5**Myocardium**

- cells, maintenance of viability, IV-202
- contractile properties, IV-168
 - effect of drugs and counterpulsation on myocardial oxygen consumption, IV-220
 - pharmacological support or enhancement of, IV-277
- ischemia, IV-5
 - biochemical therapy of myocardial infarction and, IV-195
 - effects on myocardial lipid metabolism, IV-202
 - maintenance of cell viability, IV-202
- metabolism, evaluation in ischemic heart disease, IV-155
- oxygen consumption
 - and coronary occlusion, IV-220
 - effect of drugs and counterpulsation, IV-220
- surgery
 - left ventricular function after formation of myocardial tunnels used for internal mammary artery implantation, I-71
 - new method to delineate myocardial damage at, I-83
- potassium and lactate balance during valve-replacement surgery, I-243
- tension development, IV-220
- tissue acidosis, IV-202
- tunnels
 - left ventricular function after formation of myocardial tunnels used for internal mammary artery implantation, I-71
 - pressure in vascular implant in myocardium during systole, I-75

N**Norepinephrine**

- treatment of power failure in acute myocardial infarction, IV-277

O**Obesity**

- psychosocial forces in myocardial infarction and sudden death, IV-74

Occlusions

- coronary arteries
 - and acute myocardial infarction, IV-31
 - effects on cognate resistance vessels, IV-240
 - factors influencing coronary resistance in the ischemic heart, IV-240
 - maintenance of cell viability, myocardial infarction, IV-202
 - myocardial oxygen consumption and, IV-220
 - thrombolysis in treatment of thrombotic coronary occlusion, IV-231

Oxygen consumption

- coronary occlusion and, IV-220
- effects of acidosis on performance and metabolism of anoxic heart, IV-60
- effects of drugs and counterpulsation on, IV-220

Oxygen therapy

- for acute myocardial infarction, IV-252

Oxygenators

- membrane pump-oxygenator with venous-arterial bypass, IV-315
- partial venoarterial bypass without, IV-292

P**Pain**

- treatment of myocardial infarction, IV-252

Papillary muscles

- dysfunction, acute myocardial infarction, IV-175
- rupture of, IV-175

Paroxysmal atrial tachycardia

- with Wolff-Parkinson-White syndrome treated with surgically induced A-V block, I-105

Patent ductus arteriosus

- coarctation of aorta in children and infants, I-173

Pathogenesis

- arrhythmias in myocardial infarction, IV-261
- of coronary artery disease, IV-130

Pathology

- changes in aortic valve homografts, I-47

Pentazocine

- for acute myocardial infarction, IV-252

Performance, cardiac

- effects of acidosis on performance and metabolism of anoxic heart, IV-60

Perfusion

- effects of acidosis on performance and metabolism of anoxic heart, IV-60

Pericardial friction rub

- acute myocardial infarction, IV-175

Peripheral vascular resistance

- drugs affecting, IV-277

pH

- effects of acidosis on performance and metabolism of anoxic heart, IV-60

Phenoxybenzamine

- treatment of power failure of heart in acute myocardial infarction, IV-277

Platelets

- aggregation
 - effect of dipyridamole on incidence of arterial emboli after cardiac valve replacement, I-149
 - effect of nonionic surface-active agent on blood viscosity and platelet adhesiveness, I-249
- disaggregation of platelet masses, IV-231
- myocardial infarction, IV-20
- thrombosis and, IV-20

Pluronic F68

- effect of nonionic surface-active agent on blood viscosity and platelet adhesiveness, I-249

Polarizing treatment

- for acute myocardial infarction, IV-252

Potassium

- lactate balance and myocardial potassium during valve-replacement surgery, I-243

Power failure of heart

- treatment with drugs and blood volume replacement, IV-277
- treatment with mechanical assistance, IV-292

Pregnancy

- and open-heart surgery, I-257

Pressures

- in vascular implant in myocardium during systole, I-75

Propranolol

- treatment of power failure of heart in acute myocardial infarction, IV-277

Prostheses

- bacteremia and thrombus in prosthetic heart valves in dogs, I-253
- Beall valve (dacron velour-covered Teflon disc)
 - clinical and hemodynamic findings following replacement of mitral valve with, I-127
- discoid mitral
 - abnormal hemodynamic function after disc mitral valve replacement, I-141
- effect of dipyridamole on incidence of arterial emboli after cardiac valve replacement, I-149
- hemolytic anemia following valve replacement, I-149
- intravascular hemolysis with prosthetic valves and valvular heart disease, I-135
- paracorporeal shunt prosthesis for chronic assist, IV-292
- risk factors in cardiac surgical patients, I-169
- Starr-Edwards
 - hemodynamic evaluation of cloth-covered, I-119
 - hemodynamic studies in patients with 2M and 3M prostheses, I-113
 - valve replacement
 - hemodynamic effects of glucagon, I-163

Psychosocial forces

- in myocardial infarction, IV-74

Pulmonary arteries

- banding, transposition of great arteries with ventricular septal defect, I-215
- "test banding" with balloon-tipped catheter: for evaluation of pulmonary arteriolar reactivity with pulmonary hypertension, I-201

Pulmonary vascular resistance

- following closure of ventricular septal defects, I-193

Pumps

- chronic left ventricular bypass with implantable ventricular-aortic assist pump, I-99
- extracorporeal, IV-277
- membrane pump-oxygenator with venous-arterial bypass, IV-315

R**Radiation**

- aortic valve homografts sterilized by electron-beam energy, I-57

Rejection

- epicardial ECG in monitoring cardiac homograft rejection, I-21
- pathological changes in aortic valve homografts, I-47

Rheology, blood

- effect of exercise on acute myocardial infarction, IV-124

Rhythms

- arrhythmias in myocardial infarction and, IV-261
- atrial and ventricular diastolic gallops
- acute myocardial infarction, IV-175

Risk factors

- cardiac surgery: cooperative study, I-169
- myocardial infarction, IV-74

Roseto, Pennsylvania, Study of Risk Factors, IV-74**Rubidium-84**

- effective capillary blood flow of human and canine heart after acute myocardial infarction, IV-145

S**Sedation**

- for acute myocardial infarction, IV-252

Septal defects

- atrial. *See* Atrial septal defects
- ventricular. *See* Ventricular septal defects

Shock

- effects of drugs and counterpulsation on myocardial oxygen consumption, IV-220
- general treatment of acute myocardial infarction, IV-252
- synchronous form of assist, IV-292
- treatment with mechanical assistance, IV-292

Shunts

- paracorporeal shunt prosthesis for chronic assist, IV-292
- treatment of acute myocardial infarction, IV-292

Sleep therapy

- for acute myocardial infarction, IV-252
- psychosocial forces in myocardial infarction and sudden death, IV-74

Smoking. *See* Cigarette smoking**Starr-Edwards valve prostheses**

- cloth-covered, I-119
- hemodynamic studies in patients with 2M and 3M prostheses; evidence of obstruction to left atrial emptying, I-113

Sterilization

- aortic valve homografts sterilized by electron-beam energy, I-57

Streptokinase

- lysis of fibrin, IV-231

Stress

- vascular stress exposure, IV-38

Sudden death

- in acute myocardial infarction
 - mechanism of, IV-262
 - premonitory symptoms and signs, IV-264
 - ventricular premature beats and, IV-262
- definition, IV-182
- myocardial infarction, IV-182
 - ambulatory patients, IV-262
 - onset of symptoms and, IV-182
 - preceding ill health and, IV-182

Surgery

- atrial septal defects
 - embolic complications following, I-185
- atrial septostomy
 - transposition of great arteries with ventricular septal defect, I-215
- cerebrovascular insufficiency
 - factors in mortality and morbidity associated with, I-269
- coronary artery reconstruction
 - postoperative assessment, I-61
- double-outlet right ventricle with transposed great arteries and subpulmonary ventricular septal defect, Taussig-Bing malformation, I-207
- internal mammary artery implantation, IV-315
 - acute influence, on ventricular function, I-67
 - left ventricular function after formation of myocardial tunnels used for, I-71
- for myocardial infarction, IV-315
 - acute circulatory assistance, IV-315
 - aneurysmectomy for left ventricular aneurysms, IV-315
 - cardiac replacement, IV-315
 - coronary sinus ligation, IV-315
 - infarctectomy, IV-315
 - internal mammary artery implantation, IV-315
 - left ventricular akinesia or dyskinesia treated by resection, IV-315
 - left ventricular aneurysm and aneurysmectomy, IV-315
 - mechanical circulatory assistance, IV-315
 - mitral regurgitation, IV-315

- new method to delineate myocardial damage at surgery, I-83
- operative treatment of severe complications, IV-315
- repair of rupture of free wall of left ventricle, IV-315
- revascularization, IV-315
- total cardiac replacement, IV-315
- pregnancy and open-heart surgery, I-257
- risk in, I-169
 - factors influencing: cooperative study, I-169
- surgical intervention in chronic postinfarction cardiac failure, I-91
- transplantation, I-3
 - See also Transplantation
- transposition of great arteries
 - subvalvar pulmonary obstruction complicating postoperative course of balloon atrial septostomy, I-223
 - with ventricular septal defect, I-215
- valve replacement
 - abnormal hemodynamic function after disc mitral valve replacement, I-141
 - aortic homografts for mitral valve replacement, I-39
 - Beall valve prostheses, I-127
 - effect of dipyridamole on incidence of arterial emboli after cardiac valve replacement, I-149
 - hemodynamic effects of glucagon, I-163
 - hemolytic anemia following, I-149
 - myocardial potassium and lactate balance during, I-243
 - See also Prostheses
- ventricular septal defects
 - changes in pulmonary vascular resistance following closure of, I-193
- Synchronous pressure assist**
 - clinical applications of, IV-292
 - counterpulsation and shock, IV-292
 - external assist, IV-292
 - for treatment of power failure in acute myocardial infarction, IV-292
- Systole**
 - pressure in vascular implant in myocardium during systole, I-75

T

- Tachycardia**
 - paroxysmal atrial
 - with Wolff-Parkinson-White syndrome, I-105
 - ventricular
 - diagnosis of myocardial infarction, IV-175
- Taussig-Bing malformation**
 - double-outlet right ventricle with transposed great arteries and subpulmonary ventricular septal defect, I-207
- Thromboembolism**
 - anticoagulant therapy in acute myocardial infarction, IV-271
 - bacteremia and thrombus in prosthetic heart valves in dogs, I-253
 - Beall valve prostheses, clinical and hemodynamic findings following replacement of mitral valve with, I-127
 - following repair of atrial septal defects, I-185
 - use of anticoagulants in acute myocardial infarction, IV-112
 - vena cava interruption for: influence of cardiac disease upon results, I-263
- Thrombolytic therapy**
 - in myocardial infarction, IV-231

Circulation, Volume XL, December 1969

- Thrombosis**
 - platelet function and myocardial infarction, IV-20
- Thrombus formation**

- effect of dipyridamole on incidence of arterial emboli after cardiac valve replacement, I-149
- potential of thrombolysis in treatment of thrombotic coronary occlusion, IV-231

Transplantation

- functional changes in heart, I-13
- homograft rejection, epicardial ECG in monitoring, I-21
- for myocardial infarction, IV-315
- postoperative function, I-13
- prolongation of rat heart allograft function with heterologous antilymphocyte serum, I-27
- results, IV-315
- surgical treatment, I-3
- viable aortic valve heterotransplantation, I-31

Transposition of great arteries

- double-outlet right ventricle with transposed great arteries and sub-pulmonary ventricular septal defect: Taussig-Bing malformation, I-207
- subvalvar pulmonary obstruction complicating postoperative course of balloon atrial septostomy in, I-223
- with ventricular septal defect: palliation by atrial septostomy and pulmonary artery banding, I-215

Trials, clinical

- diet high in unsaturated fats, II-1
- myocardial infarction, IV-91
 - assessment of therapeutic effect, IV-96
 - design and conduct of, IV-91
 - fatality rate, IV-92
 - historical controls, IV-93
 - methods of assessing therapeutic effects, IV-91
 - monitoring results, IV-95
 - need for controlled trials, IV-94
 - number required, IV-94
 - patient allocation to treated and comparative groups, IV-94
 - practical problems in large-scale trials, IV-97
 - stratification and random allocation, IV-95
 - timing and changes in treatment, IV-97
 - use of prognostic index, IV-93

U

Urokinase

- lysis of fibrin, IV-231

V

Valve replacement

- prosthetic
 - effects of glucagon, I-163
 - hemolytic anemia following, I-155

Valvular heart disease

- intravascular hemolysis in patients with prosthetic valves and, I-135

Vascular disease

- platelet function and myocardial infarction, IV-20

Vascular system

- chemorheologic considerations regarding blood vascular interface in coronary artery disease, IV-38

Vasoconstrictors

- peripheral (alpha agents), IV-277

Vena cava

- interruption of thromboembolism, I-263

Venoarterial bypass, IV-292

- synchronous, and counterpulsation, IV-292
- without an oxygenator, IV-294

Veno-pulmonary artery bypass, IV-292

Ventricles

- aneurysms, myocardial infarction, IV-175
- arrhythmias, IV-262
 - diagnosis of myocardial infarction, IV-175
- diastolic gallops, IV-175
- double-outlet right ventricle with transposed great arteries and subpulmonary ventricular septal defect: Taussig-Bing malformation, I-207
- fibrillation
 - arrhythmias in acute myocardial infarction, IV-262
- perforation of septum, myocardial infarction, IV-175
- premature beats and sudden death in acute myocardial infarction, IV-262
- ruptures and arrhythmias in myocardial infarction, IV-261
- tachycardia
 - diagnosis of myocardial infarction, IV-175

Ventricular septal defects

- changes in pulmonary vascular resistance following closure of, I-193
- double-outlet right ventricle with transposed great arteries and subpulmonary ventricular septal defect: Taussig-Bing malformation, I-207
- "test banding" with balloon-tipped catheter: for evaluation of pulmonary arteriolar reactivity with pulmonary hypertension, I-201
- transposition of great arteries with, I-215

W**Warfarin**

- use of anticoagulants in acute myocardial infarction, IV-112

Wolff-Parkinson-White syndrome

- surgically induced A-V block as treatment for recurrent atrial tachycardia in, I-105

